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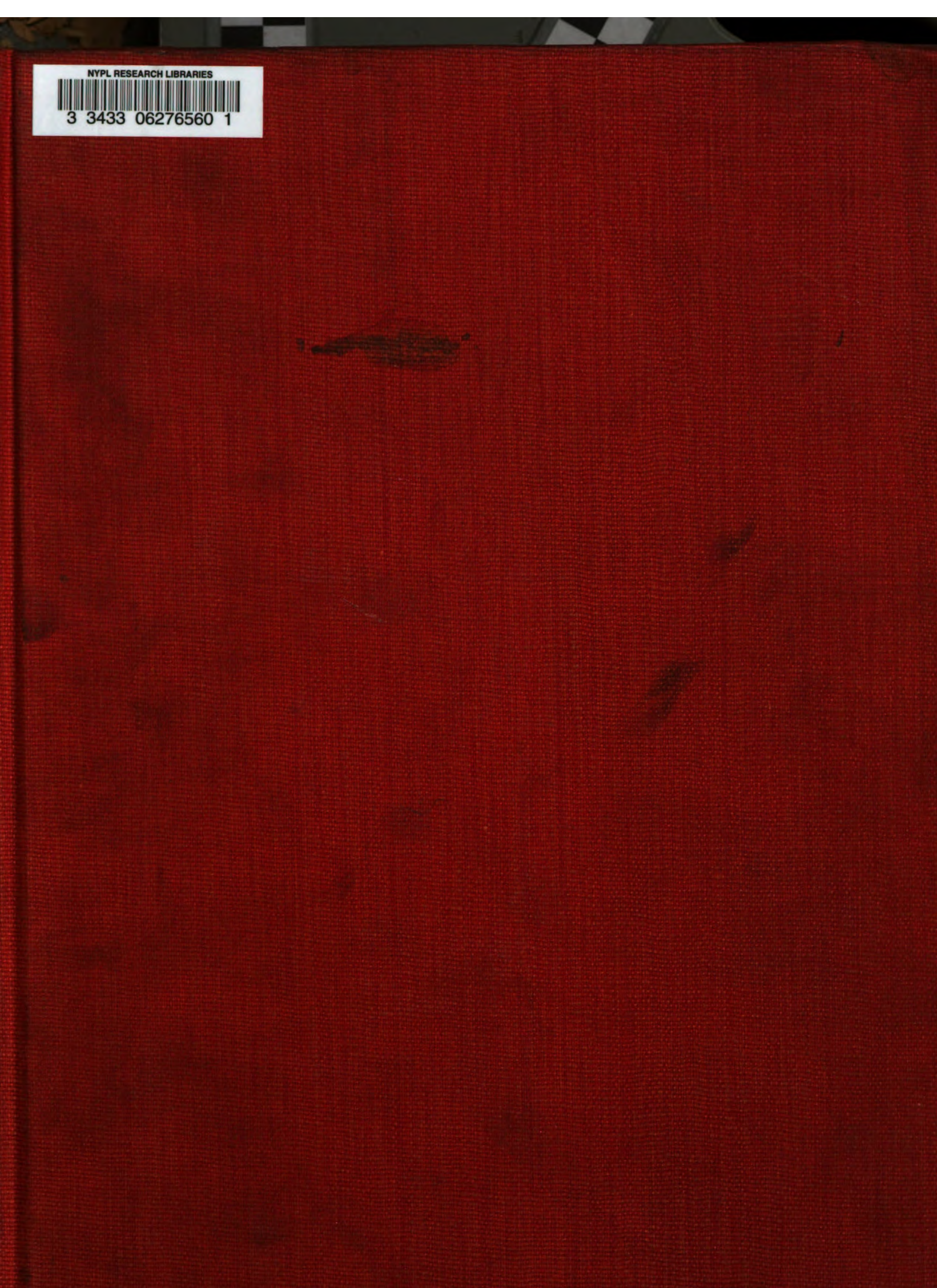
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World
Motor
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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Volume 1.1
No. 1

New York, April 4, 1917

Ten cents a copy
Two dollars a year



There Is Such An Animal!

You have heard the story of the farmer, who, seeing a giraffe at the circus, couldn't believe his eyes and exclaimed, "There ain't no sich animal!"

There are many tire dealers today who say "There ain't no such tire," meaning no tire is *profitable to sell*.

Don't say, "There ain't no such Tire." There *is* a giraffe and there *is* such a tire.

Thousands of tire dealers have found that selling

Miller
GEARED-TO-THE-ROAD
TIRES

gives them a good profit, and makes satisfied customers.

Write today for details of the Miller Tire—the Tire with the natural vegetable wax and oil retained in the fabric.

Get the Miller Selling Plan.

Miller Rubber Co., Akron, O.

Stewart PRODUCTS



Quick Sales!

Quick Profits!

That is what dealers get with Stewart Products. A rapid turnover of your accessory stock means quick profits. This means bigger profits for you.

It isn't so much what profit you make on an article as it is the quantity you can sell. For example, it is better to sell four signals of a known brand, in a certain period, at a profit of one dollar each, than to sell one unknown signal at a profit of one dollar and fifty cents.

To be profitable your accessory department must be stocked with quick sellers—articles that are well known, widely advertised and easy to sell.

Stewart Products are the fastest-selling and easiest to sell of all automobile necessities. That is why they are so profitable for dealers to carry.

Stewart Products are backed up by an enormous advertising campaign—bigger than any other in the field.

Stewart Products are more than half sold when placed on your shelves. A big demand exists. You don't have to spend a lot of time trying to move Stewart Products. Stewart advertising and Stewart prestige does it for you.

You can't afford to not sell Stewart Products. Your business is not complete without them.

It is a line that is progressing—advancing by leaps and bounds.

Fast sellers—business builders for you—are being added to the line continually.

TWO NEW STEWART PRODUCTS

will be announced next week. Something new. Something big. Just what you need—what you have been waiting for. You simply must take advantage of this new opportunity. Be sure to read the announcement on this page next week.

Stewart-Warner Speedometer Corporation
Chicago, U. S. A.



Stewart
Speedometer
\$25



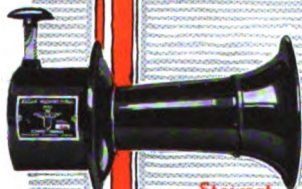
Warner
Auto-Meter
\$50



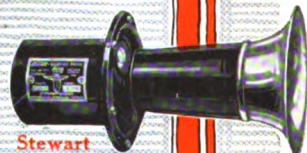
Stewart V-Ray
Spark Plug
\$1



Stewart
Vacuum System
\$10



Stewart
Hand Operated
Warning Signal
\$3.50



Stewart
Motor Driven
Warning Signal
\$6



Stewart
Tire Pump
\$12



Stewart Instrument
Board for Ford Cars
Complete

\$11.25

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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This Speedometer Has Every Point In Its Favor

It is dependable. It is durable. It is accurate. And because the majority of motorcyclists have found this to be the case the

CORBIN-BROWN SPEEDOMETER

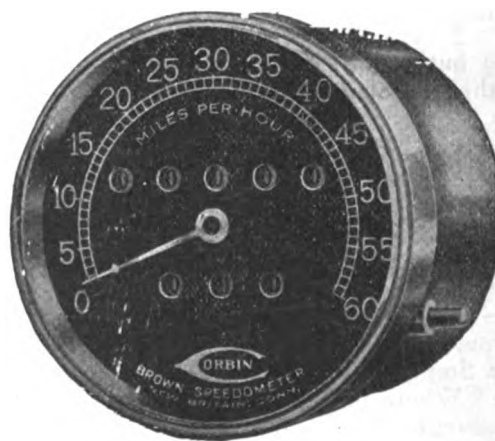
sells in larger quantities every year. To-day it is recognized as the standard speedometer equipment.

You will receive from the Corbin-Brown absolutely satisfactory service at all times and under all conditions.

It is so constructed that climatic fluctuations in no degree affect its accuracy. Its mechanism is extremely strong and simple, capable of withstanding the strain of the most rigorous service.

Investigate this speedometer now. Take it along with you on your trips this summer.

Catalog on request

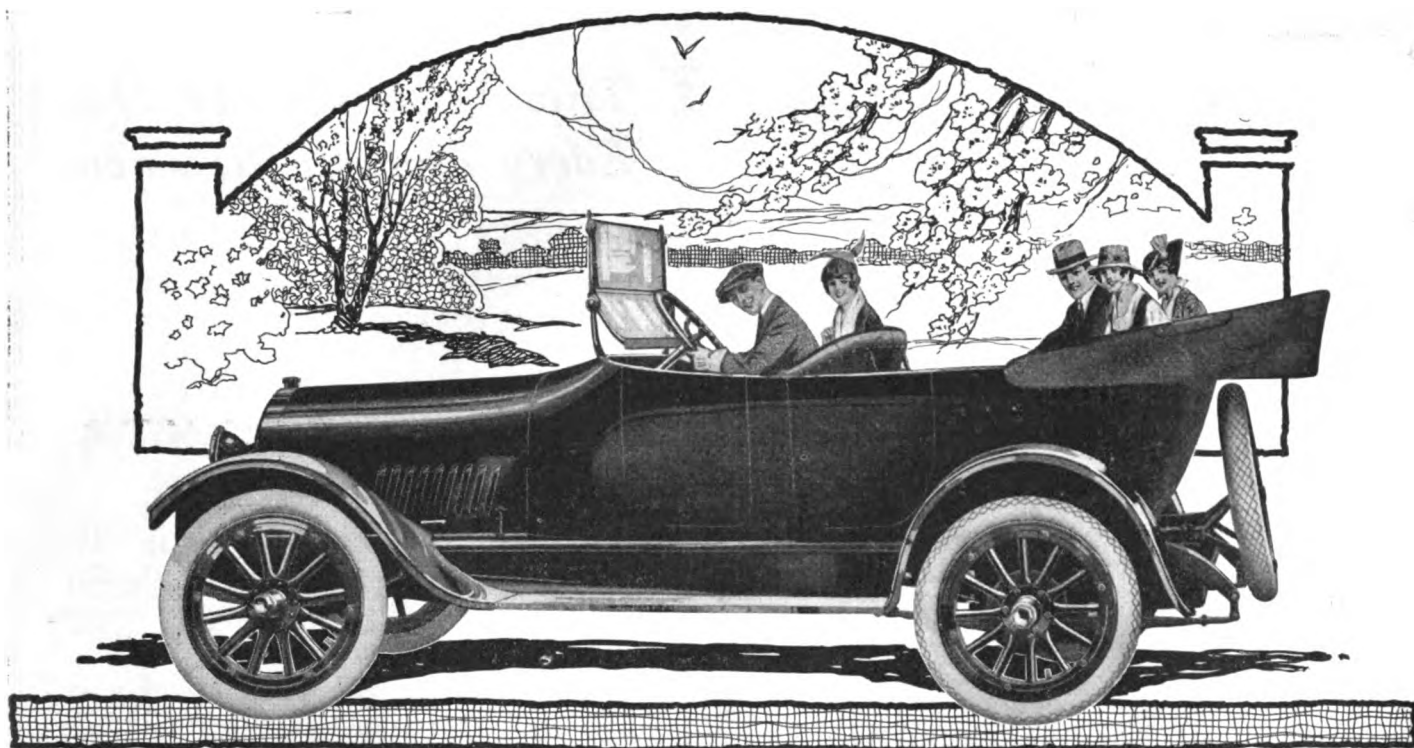


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The American Hardware Corporation, Successor
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BRANCHES: New York Chicago Philadelphia
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STEPHENS SIX

"The Car With The Punch"

An Investment, Not An Expense

Some men spend money for an automobile. Others invest money in a motor car.

There's a difference. You may not appreciate it when you accept delivery from a dealer or distributor, but after you have paid the gasoline bill, the tire bill, the repair bill for a season, you will know whether you're an automobile spender or an automobile investor.

The automobile spender is forced to acknowledge that he selected his car neither wisely nor well.

Money talks, and its conversation is not pleasing to him. The automobile investor sings a paean to his own judgment and foresight.

The man who buys a Stephens Six pats himself on the back. The car is light, easy on tires but with sufficient and well-balanced weight to hold the road at high speed. The powerful six-cylinder motor is economical. The frame and the chassis are sturdy and strong, immune from the ills that in many other cars must be continually treated by the garage man.

The Stephens Six is Ready for the Road All the Time

Fortunate is the motorist that owns a Stephens Six! His car is not in the repair shop when he wishes to use it most. He does not have to charge worry, annoyance, exasperation, trouble, against his automobile pleasures. His Sunday outings are not abandoned because of defective ignition or broken springs.

The Stephens Six is an asset to the Stephens Six owner, not a liability. It pays dividends in service satisfaction, in faithful, constant responsiveness.

The Stephens Six is powerful and strong. It is not just a fair-weather car, a pampered pet of the boulevards. Where hills are steep, the motor has the emergency power for the extraordinary pull.

The Stephens Six is built to give the maximum service with the minimum care and at a minimum cost, to last not for a season but for several years.

Our dealer proposition is most attractive. There is still some good territory open.

Two models: Each \$1225
Five-passenger Touring Car
Three-passenger Roadster

STEPHENS MOTOR
Branch of Moline Plow Co.
MOLINE, ILLINOIS
Factory, Freeport, Ill.

\$1225

FREEPORT, ILL.

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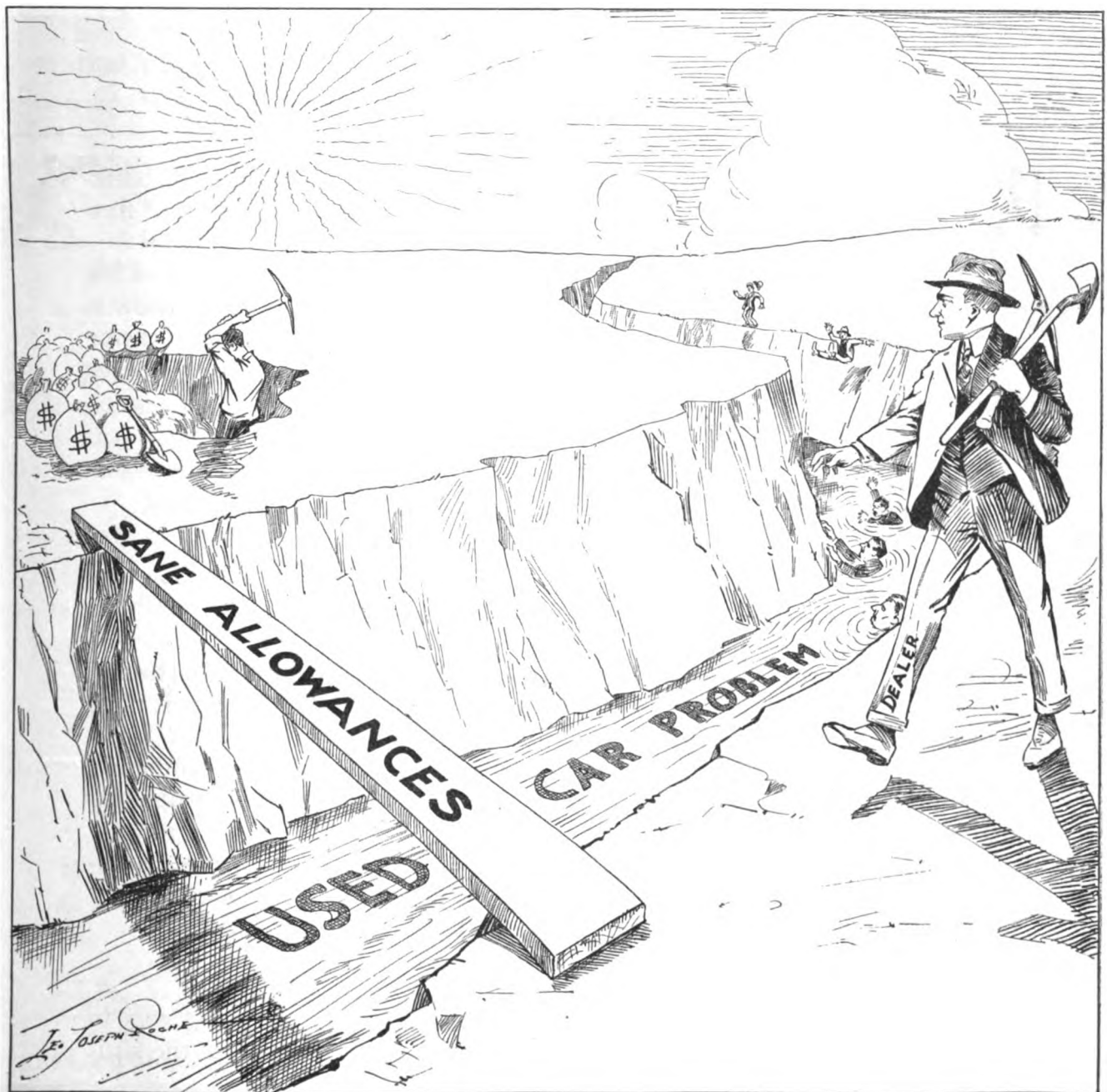
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, April 4, 1917

No. 1

The Only Way Across



Read the next two pages and tell us what YOU think

HELP SOLVE

The Used Car Problem

Make Sane Allowances

This is a call to all the dealers in the United States. It is a call to YOU. If all the dealers who read this follow the suggestion on these pages it will be
THE END OF THE USED CAR PROBLEM

IT IS the only way out. In no other manner can the juggernaut of bankruptcy be kept from rolling over the retail end of the industry and flattening out thousands of dealers in failure.

A little stiffening of backbones right now will do the trick. A little co-operation instead of cut-throat tactics will save YOU thousands of dollars.

This is the most serious situation that the industry has faced in some time. It means success or failure for a great army. This is not a joke or exaggeration. The situation is this:

Dealers are overstocked with used cars.

Car owners are demanding that the dealers take still more used cars.

Used cars are harder than ever to sell.

Dealers have lost thousands of dollars in used cars and are going to lose thousands more before they get rid of their used car overstocks.

Many dealers have had to handle 8 used cars every time they sold 10 new ones.

One big retailer lost \$13,000 last year in his used car department. Another dealer lost \$65 every time he made a trade—and didn't know it until an accountant put him wise.

Another dealer has thousands of dollars tied up in used cars—and can't get from under. And every day those cars stay in stock the cost piles up—for money is worth a certain per cent per day.

All these conditions are found everywhere. On the Pacific Coast conditions are especially bad. But everywhere they are none too good.

The used car problem was never greater than it is right NOW.

It is going to be greater this summer.

Everywhere dealers are asking: "What are we going to do?"

At the beginning we said the only way out of the difficulty was to **KEEP THE PRICE DOWN** when making a trade. Let us analyze the situation and see why this is true:

First, is it necessary that the dealer take old cars in trade when he sells new?

Some dealers flatly refuse to trade, but they are exceptions, and it is a far-fetched situation to imagine that all dealers can get along without trading. The trading of used cars probably always will be part of the motor car business. It is a part of such old industries as pianos, musical instruments and sewing machines, and so probably will continue in this business. So, let us agree that trading cannot be done away with.

Second, is it necessary that the dealer handle and resell the cars that are involved in his trades?

Some dealers operate through used car dealers, some towns have tried the clearing house plan, but it is probably best to assume as a general rule that when a dealer takes a car in trade he must take charge of its resale. He must stand on his own feet.

If it is necessary that the dealer handle used cars, how can he keep from doing so at a loss?

Now we come to the vital part of the used car problem—eliminating the loss. If there were no loss involved there would be no problem, for a business that pays a profit is not much of a problem.

Why, then, does this loss occur in handling used cars?

It occurs because the dealer sells the used car for less than he paid for it—if he sells it at all.

Why does he sell it for less than he paid for it?

He does so because he foolishly allowed more for it than the car was worth and has no possible chance of getting his money out of it.

He did so because the car buyer was a better salesman than the dealer.

The dealer allowed himself to be unduly influenced by his desire to get rid of the new car. He seems to believe his business is to move cars from his warehouse or salesroom to the public, while he overlooks the fact that his real business is to make money, to make a profit every time he moves one of those new cars.

Moving new cars at a loss is not salesmanship nor good business on the part of the dealer, although it may be on the part of the customer.

And so it all comes right back to where we were in the beginning. The problem exists because dealers allow too much for old cars, and the solution is not to allow so much. Keep the price down to where you know you can get your money back. Each dealer must lay down a sensible business rule for himself. He must say:

“When I sell a new car I will not allow more for the old car than I can get for it, deducting from the resale price any needed overhauling and a selling commission of 5% or more.

“If I cannot trade on this basis I will pass up the sale.”

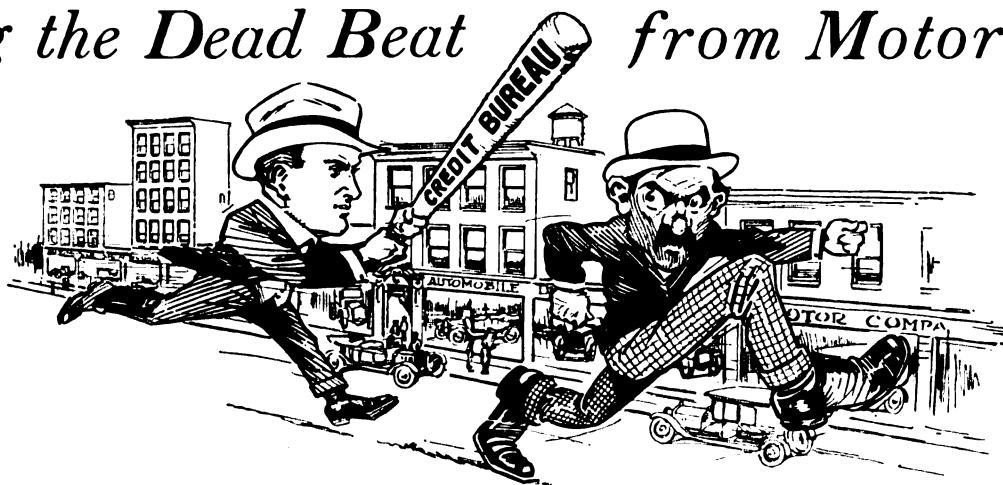
Right there a lot of dealers will throw their arms in the air and shout: “Yes, but we lose sales! We lose sales!”

To which we answer: “Yes, but you save money!”

During coming issues MOTOR WORLD will tell you of the plans that have solved the used car problem for successful dealers. These plans differ in details, but they are all founded on the one, big, common-sense principle of not allowing more for a used car than can be secured for it on resale.

With a shortage of cars all the time why should a dealer break his neck to make sales on which he does not make money?

Chasing the Dead Beat from Motor Row



THE DENVER DEALERS' CREDIT BUREAU

A COLLECTION department for the aid of its members has recently been established by the Automobile Trades Association of Colorado. The system has been tried on quite a few accounts so far, and it has gained immediate results in every case. Such a department was asked for by the garagemen at a general meeting of the association, a careful investigation was made and the plan worked out is providing the members with efficient service at a reasonable cost for collecting difficult accounts.

Joined Credit Association

To gain such expert advice as the members feel they need, the Trades Association has joined the Retail Credit Men's Association of Denver as an association. The plan adopted was considered the best plan for meeting the association's needs, and followed a thorough investigation of propositions from a large number of collection agencies and attorneys by the association's then secretary, W. P. Tyler.

Under the provisions of the membership arrangement covering the motor organization's joining the credit association in a body, all information passes through the office of the secretary of the former, thus strengthening the influence of the trades body to secure payment of its members' accounts.

Members who wish to take advantage of this credit information and collection service are furnished a series of blanks to report all the accounts on their books, whether open or closed, good or bad; to apply for dependable information regarding the credit qualifications of any customer; to file confidential report ratings, and to furnish references regarding new customers.

All these reports or inquiries come to the office of the Trades Association,

which has established a credit bureau of its own, and are then turned over to the main organization. The rating cards are identified by key numbers assigned to the different members, thus assuring that the information given by members will be kept confidential.

Improve Business Methods

This plan is also expected to help the association members improve their own individual business methods. "We have found that the main trouble with collections is too much leniency with new customers," says Tyler. "This is especially true of garagemen, who are often careless not only about requiring references from

new customers but even about getting their full names, addresses, line of business or employment, etc. Filling out these special reference slips will bring a prompt investigation through our bureau, and will provide a prompt guard against questionable accounts."

Colorado has no law giving a garageman any recourse after he once lets a car get out of his place, and this situation makes the new credit and collection plan all the more important. Many garagemen make a practice of chaining and locking cars owned by customers trying to dodge their garage bills, and once in a while somebody takes a chance

FIRST NAME		Last Name (First)	
Name	.....	Name	.....
Res. Add.	.....	Business	.....
Bus. Add.	.....	Make of Car and License No.	.....
Business	.....	Acct. Opened	.....
Rating	.....	Acct. No. Ch.	.....
How Long	.....	Acct. Overdue	.....
Reason for Non-Payment	.....	How Long	.....
Holding Car?	.....	How Long?	.....
Date	.....	How Long?	.....
Form No. 1			

RATING	
P	Prompt for small bills
PA	Prompt for \$500.00
PB	Prompt for \$250.00
PC	Prompt for \$100.00
PD	Prompt for \$50.00
PE	Prompt for \$25.00
PF	Prompt for \$10.00
G	Considered good but not prompt
S	Slow
R	Require Cash
K	Account for Collection
Z	Chattel mortgage on personal property
HC	Holding Car
VOL	Voluntary Bankrupt
INVOL	Involuntary Bankrupt
F. E. D.	Forfeiture Entry and Detainer
ATT.	Attachment
GARN.	Garnishment
EX.	Execution
EXT.	Extension on chattel mortgage
O	Repossession of goods under chattel
H. E.	Homestead Entry
ASGN.	Assignment
*	Special Information at office.

10 (member's code number)	
Name	.....
Residence	.....
Business	.....
Business Address	.....
References	.....
Mem. No.	.....
Signed	.....
Remarks Over	.....
Form No. 2	

FORM 1 (Upper left)—Each member, at the beginning of the use of the system, is asked to fill out one of these for each account on his books

FORM 2 (Right)—This tells the characters to be used in telling of the customer's standing when replying to Form 1

FORM 3 (Lower left)—Members who wish credit information are requested to fill out this blank

in bringing a car in out of the street and out-bluffing the owner. One leading garage proprietor recently went so far as to lock in both car and owner involved in an account which had been standing about six months. The garage-man then threatened to whip the fellow, although the latter was considerably the bigger, and he finally got a check dated three days ahead. He accepted this on a chance of its being good, but threatened to send the debtor to the penitentiary if this check proved worthless and merely a further ruse to delay payment. But the check happened to be all right. Such radical methods will not likely be resorted to under the new collection plan.

Lien Law Vetoed

The Trades Association secured the passage of a fairly strong garage lien law at the last session of the Legislature, but the measure was vetoed by the Governor.

Form letters are furnished the members for their own use to help collect accounts, and other forms are sent out by the trades organization. These comprise a series of two letters and a debtor's notice, and a charge of 25 cents is made for the series, to cover postage, stationery, etc.

"Of the first three accounts submitted to us for collection, our first letter has brought action in each case," said Tyler. "One man called up and arranged to begin payments the first of the month. Another was waiting for me at my office the next morning with a claim of some error in the work or the bill and was referred to the creditor for an adjustment. The third happened to be an out-of-town account, and the man called up on the long distance telephone, made an appointment with the garage-man for Sunday—and kept the appointment."

The Credit System

The system employed by the Automobile Trades Association in furnishing members its new credit information and collection service consists of the following steps:

Form No. 1

Each member is furnished enough "first name" blanks (form No. 1) to cover all the accounts on his books, and is asked to fill out one of these for every account he has, whether old or new, good or bad, and to turn in this complete information to the secretary of the trades body. This detailed record of the credit standing of all the member's customers is then filled by the trades secretary with the credit association, and is used to make the service of both organizations the more comprehensive and reliable.

<p>Letter sent to the Credit Men's Ass. Co. Date: _____</p>	<p>The Credit Men's Adjustment Company, Suite 601 Foster Building, Denver, Colo. Gentlemen: We have sent the first Collection Letter to _____ Please enter this on the records of The Retail Credit Men's Association as an over-due account. Form No. 5</p>
<p>Check No. _____ Amount, \$ _____ Debtor _____ Address _____ First letter sent _____ Date _____ Remarks _____</p>	<p>The Credit Men's Adjustment Company SUITE 601 FOSTER BUILDING, DENVER, COLO. Phone Main 4210 Collection Department of the Retail Credit Men's Association Date _____</p> <p>a member of this Association, has placed with us for collection an account against you amounting to \$ _____ which is now long past due. Presuming that failure to settle this account has been more thru neglect than any intention on your part to avoid payment of same, we respectfully request that a remittance covering the amount be made at once. We shall take no action for ten days, and if payment be made in that time no reflection will cast on your credit standing, by reason of this account having passed thru our hands, and we therefore hope the matter will receive your prompt attention. Yours respectfully, THE CREDIT MEN'S ADJUSTMENT CO. Mail your remittance direct to your creditor. Form No. 6</p>
<p>Second letter sent _____ Date _____ Remarks _____</p>	<p>The Credit Men's Adjustment Company SUITE 601 FOSTER BUILDING, DENVER, COLO. Phone Main 4210 Collection Department of the Retail Credit Men's Association Date _____</p> <p>Greatly to our surprise we find it again necessary to call your attention to the condition of your account with _____ We feel that you must have overlooked this matter as you would surely have given some evidence of good faith, even if you found it impossible to settle the entire amount at once. We trust you will appreciate that this matter should receive your immediate attention, and in order to avoid embarrassment incident to such matters, will expect you to call or write immediately and perfect its honorable adjustment with us, or mail your remittance direct to your creditor at once. Yours respectfully, THE CREDIT MEN'S ADJUSTMENT CO. Form No. 7</p>
<p>Legal Notice sent _____ Date _____ Remarks _____</p>	<p>DEBTOR'S NOTICE.</p> <p>STATE OF COLORADO CITY AND COUNTY OF DENVER</p> <p>Plaintiff, _____ vs. _____ Defendant.</p> <p>You are Herewith Notified, That unless this claim is settled or some satisfactory arrangement is made on or before _____ A. D. 191____, suit will be brought against you and the matter will be pushed to a final judgment.</p> <p>This notice is given for the benefit of those whose debts remain unpaid through oversight, carelessness, or on account of some good and sufficient reason, and who do not desire to defraud their creditors. No further notice will be given. Obey this, mail your check to your creditor at once.</p> <p>Dated at Denver, Colorado, this _____ day of _____ A. D. 191____</p> <p>THE CREDIT MEN'S ADJUSTMENT COMPANY, City Credit Men's Adjustment Company Phone Main 4210 SUITE 601 FOSTER BUILDING, DENVER, COLO. For Plaintiff. Form No. 8</p>

FORM 5—When an account is turned over to the association for collection this slip goes with the account

FORM 6—At the same time No. 5 is mailed No. 6 is sent to the delinquent debtor

FORM 7—This is a more insistent demand for the payment of the bill

FORM 8—This is the last call before suit and is very effective

Form No. 2

To aid the member in making this credit report conform to a fixed standard of classification and also to insure that it will be handled confidentially all the way through, he is given one rating card (form No. 2), containing the member's own code number recorded by the trades and credit associations and a

schedule of keys to cover 24 different classes of credit standing.

Form No. 3

Reference blanks for checking up on new customers that wish credit (form No. 3) are given the members to fill out and send to the association, which in turn hands them at once to the credit concern.

FORM 9 (Upper right)—Members notify the association when customers change their addresses

FORM 10 (Left)—The association secretary, in response to requests for information, sends this blank out to members in search for the information

FORM 11 (Lower right)—This is a debtor's record file in the association office

If any adverse information is found concerning the customer, the association is notified within a day, and can protect its member against extending any large amount of credit. If no immediate report is received, the customer's standing is understood to be satisfactory. Then, as promptly as an accurate rating can be furnished concerning the new customer, this is sent to the member, stated in terms of the key schedule on his rate card. No charge is made for this service of checking up on the references and standing of new customers.

Form No. 4.

The systematic campaign to collect slow accounts is started with a letter drafted by the trades association (form No. 4) and given the member for his guidance in sending out a strong notice that failure to pay before a certain date would bring the account into the hands of the trades association for collection through the credit body. This form letter will often bring prompt action, inasmuch as it constitutes a double threat through mentioning both organizations to be called into the case.

Members not having stenographers and wishing their organization to send out this letter for them can obtain this service by furnishing the required stationery and postage. Or, if they prefer, they can bring their regular statements to the trades office and have them stamped with a brief statement of this threatened action to force payment.

If this form letter or stamped statement fails to bring results, the account is placed in the hands of the trades body, which immediately enters it on the books of the Credit Men's Adjustment Co., which is the collection department of the credit concern.

Forms Nos. 5 and 6

When the account is turned over for collection, it is accompanied by a regular blank for entering over-due accounts (form No. 5). At the same time, the trades body sends the delinquent customer of its member a notice of this action (form No. 6), with instructions to mail remittance direct to the creditor.

Form No. 7.

The effect of this notice, which is signed by the adjustment company, is automatically reported to all the parties seeking to force the payment of this account. Unless the account is paid or satisfactory arrangements are made within ten days, a still more emphatic notice (form 7) is sent, demanding an immediate response of some kind.

Form No. 8

After another ten days, if no adjustment has been made, a debtor's notice (form 8) to settle the claim within a certain time limit or stand suit in court is sent the delinquent customer. This notice announces that the matter will be pushed to a final judgment, and also contains a condensed statement of the laws of the state regarding property subject to execution in collection cases allowed to go to court. This final notice is gotten up in regular legal form, states clearly that no further notice will be given and explains that it is issued "for the benefit of those whose debts remain unpaid through oversight, carelessness, or on account of some good and sufficient reason, and who do not desire to defraud their creditors."

When an account is turned over to this adjustment company, the trades member agrees to pay 10 per cent in case the account is collected. He is also required

Form 4—Form Letter

John B. Debtor:

Dear Sir:

We inclose herewith our statement showing an account against you, amounting to \$102.10, which is now long past due.

Assuming that failure to settle this account has been caused more through neglect than an intention on your part to avoid payment, we respectfully suggest that a remittance covering this amount be made at once.

If payment is not made by we will turn it over to The Automobile Trades Association for collection through the Retail Credit Men's Association.

Trusting you will not make it necessary for us to take such drastic action, we are

Yours very truly,

UNLESS THIS ACCOUNT IS PAID ON OR BEFORE

**WE WILL TURN IT OVER TO THE
AUTOMOBILE TRADES
ASSOCIATION**

**FOR COLLECTION THROUGH THE
RETAIL CREDIT MEN'S ASSO-
CIATION**

Form letter (above) furnished members by trades association to help collect accounts without need of turning them over to credit adjustment concern. Also (below) rubber stamp to use as substitute by condensing letter's threat on regular statement.

FORM 4—This is the first letter in the operation of the collection machinery and is sent out by the dealer

to pay his own organization a fee of 25 cents for sending out these four adjustment notices.

Form No. 9.

To keep his own organization and also the credit concern fully informed, the member is supplied with change of address blanks (form No. 9) to fill out and turn in immediately upon learning that any credit customer of his has changed either business location or place of residence. This also has the advantage of influencing tradesmen to keep more careful watch of their credit customers.

Forms Nos. 10 and 11

If a member wishes credit information about any individual, he files his request with his organization by letter or by telephone if urgent. His organization keeps this name on file, to fill in on a regular blank (form No. 11) for its own records whatever report is secured from the credit concern. The trades secretary requests this information through a regular inquiry blank (form No. 10), which is made out in duplicate and returned with the credit report. If the request is urgent, this information is immediately telephoned the member.

The original of this inquiry blank, with the official report, is then mailed at once

to the member, while the duplicate is kept in the trades office till the end of the month, when it is sent out with the member's regular monthly statement as a specific record of all such service included in his bill for the month. A charge of 11 cents a name is made by the credit organization for this special report service, the same to be paid through the trades body.

Under this arrangement for helping its members to collect slow accounts and to avoid bad ones, the trades association provides a dependable service at exceedingly small cost, and secures for them at merely the expense of the established fees mentioned the same service they would be able to get by joining the credit organization individually and paying \$30 a year dues. The trades body pays this amount for an association membership in the credit body, and then cooperates in furnishing this systematic credit and collection service to its individual members.

President Charles T. Bruckman of the trades association believes that this arrangement for giving its members the benefit of credit and collection assistance is one of the best moves made by any

similar organization in the country, provided the members will take advantage of the service offered them. This new feature is also counted upon to stimulate greater interest among the dealers and garagemen in the general work of their organization.

System Not Complicated

"If this system seems complicated," says President Bruckman, "it is because of the fact that we have joined the Retail Credit Men's Association as a body and not as individual members. It is therefore necessary that all collection or credit information pass through the office of the Automobile Trades Association secretary. This practically saves our individual members \$30 a year, provided they make use of this service. Our arrangement gets the same results, with no perceptible delay on account of what might look like extra machinery for carrying the system through two organizations. Besides, the work is of distinct value to our own organization, and we feel that this move will be appreciated by all members showing sufficient interest to look into what it offers them."

It's Coming! You'll Use It!!

MOTOR World Used Car Price Record has been received with enthusiasm. Dealers are unanimous that this service, announcement of which was made last week in Motor World, will be of almost inestimable dollars and cents value to them. From all over the country have come letters commending Motor World for its forethought and its grasp of the dealer situation as indicated by the purpose of the Used Car Price Record.

This record is to be published each week. It will give current resale prices of used cars of all leading makes and models. The data will be collected each week by Motor World Territorial Representatives direct from the dealers in these cars. It will be published in tabular form for quick reference.

Only actual resale prices will be given because allowances and appraisals must be based on retail prices.

It is because allowances are not now made on resale prices that the used car is the problem it is. If dealer Jones *knows* that the resale price of a certain make and model of car is \$300 in his city, he then has a definite figure on which to base his allowance.

He knows that he cannot afford to allow \$400, \$325 or even \$300.

The first tabulation will appear in the Summer Merchandising Number of Motor World, out April 25. Watch for it!

Make Better Business Men

Editor Motor World: During my recent trip to the Pacific Coast, where I had the pleasure of meeting practically all the large automobile dealers in that section, I

was simply astounded to learn of the unsettled condition concerning the used car problem.

Especially was this true in the smaller cities.

Dealer "A" did not know what dealer "B's" car was worth. He did not know what it was worth in Chicago, nor did he know what it was worth *in his own city*.

The result was he took a long-distance gamble and made the allowance, usually losing considerably on it, and then wondering at the end of the year why his books did not show a profit.

And it was invariably the rule that those dealers who had studied the used car problem most carefully and who knew most about the values of used cars, *were the ones who were making the most money*.

In our own organization we have preached this to our dealers for a long time, with the result we felt that it had been partially overcome, in so far as our own organization is concerned, but the dealer in general certainly has not enough knowledge on this subject.

With this in mind, I believe the work you are doing, as indicated on pages 8 and 9 of the March 28 issue of Motor World, will be of immense benefit to the industry.

If you can get the dealers to study this it will return them dividends a hundredfold. It will make them better business men, give them a better knowledge of their business and let them know really what they are talking about when it comes to buying a used car—because, after all, that is all the transaction means.

I want to especially commend Motor World for working on this, and I believe you cannot be too emphatic in bringing this to the attention of the dealers.—F. E. Moskovics, Commercial Manager, Nordyke & Marmon, Indianapolis.

Bringing Down The Prospect Bird

By Ray W. Sherman

"WELL" said Tommy Trumbull as he walked up to Reilly's desk, hitching his overcoat up and his undercoat down, "I suppose we'll have to begin pretty soon to lay out our ammunition for our big spring drive."

"Yes, we ought to do it soon now; this week," replied Reilly. "What are you doing this afternoon?"

"Lots of things. But I guess I can find a little time. What's your idea this year? Have you thought about it at all?"

"Yes, I have," said Reilly, as he leaned back in his chair and remarked his cogitations of several weeks past. "I had sort of thought out a series that we could get up and use all summer. It isn't exactly a series; it's a set. And now that we've bought this letter-making machine we can always have some of the set handy and ready to shoot out at a minute's notice."

"You see, I figured it out this way. We shall always be having our little campaigns on certain cars and on certain selected lists of prospects at certain seasons, but aside from that we have our year-around sales work in which we certainly can use form letters to good advantage. The set I had thought of would do for this all-season sales work."

"How would you lay it out?" questioned the junior salesman.

"Well, I had thought of making each letter on a certain subject. You see, when we are working on a prospect in person we always bring up before him those points in which we think he is most interested. If he is quite a motor fan he may be interested in performance, and in that case we talk of the manner in which the Sennett performs, so I figure that we can do the same thing with our sales letters."

"As each letter was sent out it would be preceded or followed or both by a personal call or a telephone call. We would not leave it to the letter to do the whole job, as might be done in a series in a campaign. We might, of course, send two or more of the letters to one man if as many as that fit his case. We could build up all kinds of series. It's just like a lot of guns with different kinds of shot. You hide in the brush and watch for the birds and use whatever gun you think will do the most damage."



Room

When you want to carry six or seven people in your new car you are going to be disappointed if the five in the tonneau are uncomfortably cramped. The only way to avoid this is to make sure your car was designed for roomy comfort.

The Sennett tonneau is built for five—it is wide. The two extra seats disappear when not in use and when in use they are surprisingly easy-riding. It is not a tonneau for three grown-ups and two children. It is for five regular people.

No letter, however, can describe room. It is appreciated only when tried out. The inside dimensions of the body are shown on the enclosed card, but we suggest that you come to our salesroom and see the real car for yourself. We believe you will be surprised at how much room can be built into a car of average wheelbase.

*Very truly yours,
C. J. REILLY, Inc.*

Performance

The car you are going to buy must be able to do things.

When you hit a hill the car must walk right up without weakening.

When you hit dense traffic the car must throttle down to a "walk."

When you come upon a rough road you want to go over it without being jolted unmercifully.

And when the roads are smooth your car must purr along as smoothly and steadily as the Twentieth Century on its heavy, steel rails.

The car must also stand up in service and not mar your pleasure by developing a series of petty annoyances.

All these qualities are in the Sennett. We have tried it and know it. And 1100 motorists in and about Callawassa have tried the car and will give you any information you wish. Ask them. The owner is always the Supreme Court of Motordom.

*Very truly yours,
C. J. REILLY, Inc.*

Comfort

If you can't motor in comfort you would rather stay home, and you certainly don't want to stay home during all the fine touring weather that is now opening up.

Making a car comfortable is an art. Comfort comes from skilled engineering, not necessarily from the extravagant use of materials.

There are so many things entering into the comfort of the Sennett that it would be boresome to enumerate them. Anyway, the fact that the car is comfortable is all that counts, and we wish to demonstrate this fact to you.

If you will, by returning the enclosed card, indicate whether you prefer to test a touring car or four-passenger roadster we shall be pleased to show you Sennett comfort over a variety of roads.

*Very truly yours,
C. J. REILLY, Inc.*

Service

Every person who ever bought a car found after he bought it that the enjoyment from the car depended a whole lot upon what is so commonly spoken of among car owners as "service."

"Service" is best defined as the relationship between yourself and the dealer from whom you bought the car. If this relationship is unpleasant you do not enjoy your car. And if it is pleasant you enjoy the car immensely.

"Service" is made up of several parts—the personnel of the dealer's organization, his shop equipment, his investment in his business and his ability to keep your car running to YOUR satisfaction.

We could say a world of things about Reilly service, for we believe we stand very high in every essential. However, we suggest that you get your own evidence on this most important (to you) point, and we enclose the names of a few Sennett owners.

Ask them about our service. They are willing to tell you.

Very truly yours,
C. J. REILLY, Inc.

The Dealer

Have you ever considered what the dealer means to you when you buy your new car?

You say you are buying a car, not a dealer, and this is true—BUT the car and the dealer are always inseparably hooked together, and when you buy your new car the dealer is a most important part of the car's service and satisfaction.

You want a good car—and also you want a good dealer. The dealer from whom you buy should be one well-established. He should be here two years from now, or ten years from now, in case you want to consult him about your car.

He should be experienced, reliable and trustworthy, a business man with whom it is a pleasure and safe to deal. He should have a goodly business investment that he may be able to care for all your needs.

From bankers, business men or anywhere in town you are invited to inquire about us. We have been here eight years and expect to be here for years to come. And ask any Sennett owner anywhere in this section about us. Inquire at your pleasure; we are willing. Very truly yours,
C. J. REILLY, Inc.

Class

We all try to be quite common-sense in our doings, but nevertheless we will all admit that there is such a thing as "class" and that the average man really wants "class" in the car he is going to buy. There are few people of whom this is not true, no matter how little they talk about it.

"Class" in a motor car is a more or less indefinable quality. It includes appearance, performance, price, riding qualities and a host of other things, and on top of those there is the atmosphere that surrounds the car, the company, the type of owners and the public esteem in which the car is held.

Very hard to define, isn't it? And yet there is such a thing, isn't there? And you want it in the car you are going to buy, don't you?

Why don't you drop into our sales-room some day when we're not expecting you, and therefore haven't had time to stage things for your coming, and see if the Sennett doesn't impress you as having "class?"

This study of "class" in a scientific way you will find most interesting.

Very truly yours,
C. J. REILLY, Inc.

Economy

When a pleasure costs excessively it ceases to be a pleasure.

And it is that way with the car you are going to buy.

If it costs excessively to run the car you are not going to enjoy its use. The car will make itself an extravagance, and the pleasant anticipations of to-day will become to-morrow's dreads.

The Sennett engineers were aware of this fact when they designed the Sennett. The motor was made economical. The car was constructed all the way through with economy as an object.

That is why 1100 motorists in and about Callawassa regard their Sennetts as big contributors to the pleasure of their living, for the car gives wonderful service—and at a reasonable cost.

One day a Sennett owner wrote us a letter, telling what he thought of his car and its economy. He puts it even a little stronger than would we. But read it. It is enclosed.

Very truly yours,
C. J. REILLY, Inc.

Appearance

When all the cars go out on the road on a summer's day each motorist critically scans every other car. He wonders if other cars look as well as his car.

It is human nature to want to own the best, to have the best looking car on the road, to know that you don't have to take a back seat on the score of appearance.

This critical motorist—who is yourself—was in the mind of the designer when he worked out the lines of the Sennett. He worked well, too, for there is not, we believe, a better looking car in the world than the new Sennett.

It is our suggestion that you do this: Fill in and return the enclosed card. Then we shall notify you by telephone when the car is coming, and we suggest that you watch it as it comes down the street and stops in front of your house. That is the best test we know.

Awaiting your reply, we are
Very truly yours,
C. J. REILLY, Inc.

Price

Price doesn't mean anything unless you consider what you get for it.

Especially is this true as regards motor cars.

Unless the car you are going to buy gives you satisfaction it has cost too much—no matter what you paid for it. A \$5,000 car that won't run isn't worth a nickel to you as a motorist.

Now, you may have decided that you would pay more than \$1,180 for your new car. Or you may have decided that you would pay less. But we believe \$1,180 is what you should pay—unless you are going up among the aristocrats at four and five times that price.

A Sennett at \$1,180 will, we believe, do all you will require of your car, and we do not believe you will be so well satisfied if you pay less.

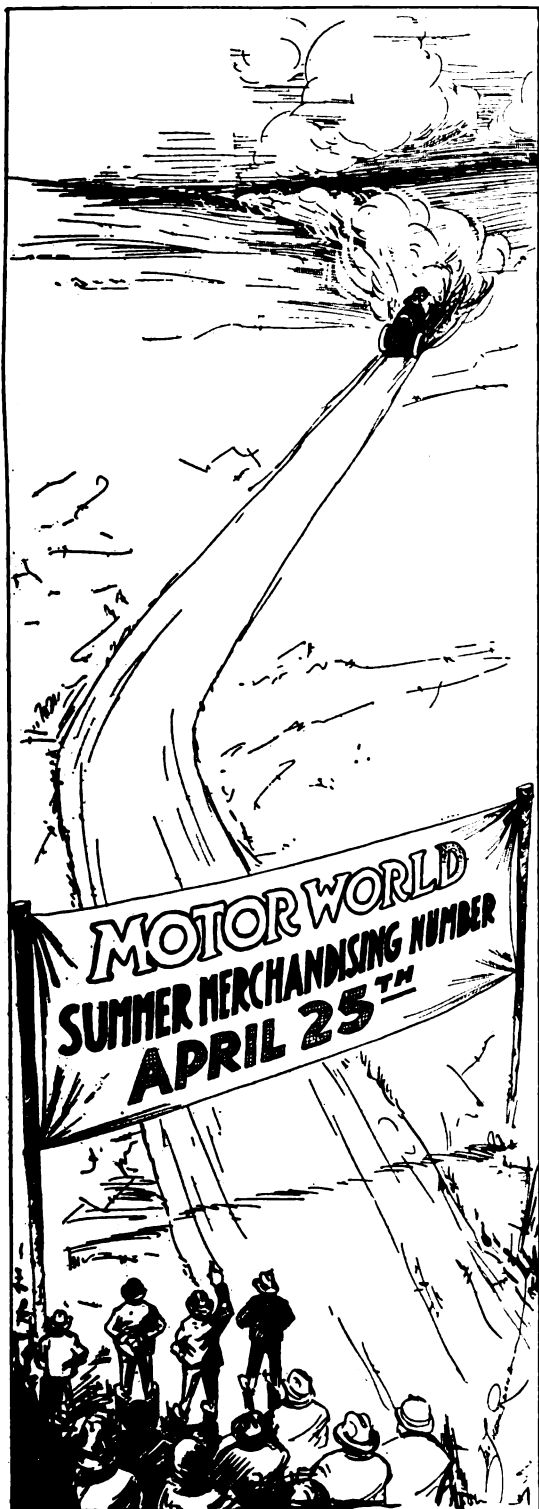
But, as we stated before, price means nothing unless you consider what it stands for, and we suggest that you drop in and see just what this new Sennett is like. While here ask to be shown how easily the driving seat is adjusted to your leg length. Very truly yours,

C. J. REILLY, Inc.

The letters on this and the opposite page are those referred to in the story on the opposite. Similar letters may be written on any sales point that is important to the dealer.

Are You All Set?

Look Through Your Front Doors



GET ready! In a few days you'll want to be ready and then you'll have no time to do any "getting ready." When spring business opens up you'll have your hands full taking care of it. And you won't be able to

Get More Than Your Share

unless you are ALL SET, all ready, everything spick and span, your stock in shape, your place of business cleaned up and shining and every man on his toes.

Warm weather will bring you a certain amount of business if you do nothing except sit in the door with your hat in your hand and let the customers drop their money in, but if you get up and GO AFTER IT in an aggressive way you can

Get More Than Your Share

There are lots of things to be done. Let us take one thing and do that. Let us so fix the interior of our building, our garage, our car salesroom or other room that the customer will get a favorable impression as he enters the door.

Forget that you own the place, and go out and walk up to the door of your garage. Stand there fifteen minutes and look carefully all around. See how many broken windows, broken floors and other defects you can see. Be extremely critical.

Stand in your salesroom door and see how it looks. Is the floor of poor appearance? Are there untidy corners and littered offices in view? Remember how some of the FINE salesrooms you have seen looked and compare your own with them. Put things right!

Stand in your office door and see whether it looks like an office or the clearing house for a waste-paper association.

Look through the shop door and criticize. Get the whole insides of the place right.

The rush of business soon begins and with it comes Motor World's big Summer Merchandising Number, April 25. It will be filled with ideas for getting business. It will tell you how to

Get More Than Your Share

But you can't get more than your share and you can't pull through the summer with a maximum profit unless you get ready beforehand, unless you

Get set NOW.

Accounting *and* Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Sneed

How Would You Answer This?

System Editor: We are two brothers, in partnership, having an original investment in the business of \$5,000 each. Our business is now worth \$12,000, and a good-will which we consider worth \$3,000, making a total worth of \$15,000. We are considering taking in a third partner. Can this third partner put in another \$7,500, or must we divide the \$15,000 into three equal shares of \$5,000 each, he paying \$5,000 into the business?

Assuming he does the latter, this leaves our share \$5,000 each, then what becomes of the extra \$5,000 difference between \$15,000 before and \$10,000 now, shares of the two brothers? We presume this \$5,000 should go into a personal account of the two brothers, showing as a loan to the business, on which the business must pay 6 per cent interest. Are we right?

UP-TO-DATE AUTO & SUPPLY Co.
Sauk City, Wis.

We will assume that your capital investment plus your net profit amounted to \$12,000, and that you made an entry on your books setting up an asset called Good-will at \$3,000 and crediting the partners at \$15,000. This made each of the two partners' capital investment \$7,500.

Now, you wish to admit a new partner, who will share in the profits of the business in an equal amount to the two partners already owning the business. You wish to do this despite the fact that the new partner will deposit only \$5,000 cash. You receive the cash and debit your bank account and you credit Partner No. 3, Capital Investment, \$5,000. Now, your capital investment stands—Partner No. 1, \$7,500; Partner No. 2, \$7,500, and Partner No. 3, \$5,000. As I stated above, you wish to allow the third partner to share equally with the other two.

We will assume that in admitting this new partner the Good-will of the business has evidently been increased, and for this reason we will increase our Asset Good-will account by \$2,500, making this now \$5,500 in all. Our charge or debit would be to the Good-will account and our credit of \$2,500 would be to Partner No. 3, Capital Investment Account. This then would leave each partner's capital investment account \$7,500.

If it is not your intention that Partner No. 3 be admitted for \$5,000 and be allowed to share equally, then I would suggest that you make the following entry:

When the Partner No. 3 pays in cash his \$5,000, you will credit Capital Investment, Partner No. 3, with a like amount. Then in order to reduce Partners Nos. 1 and 2 to an equal capital invested you would charge Partner No. 1 \$1,250 and credit Notes Payable to Partner 1 for a like amount. Likewise you would charge Partner No. 2, Capital Investment, \$1,250, and credit Notes Payable to Partner No. 2. This would leave the capital investment of each partner \$5,000 and you would share in the business equally, but the business would show a liability to Partners Nos. 1 and 2 of \$1,250 each upon which you would draw interest at 6 per cent.

\$100 on Account

System Editor: Kindly explain the following, as we are not quite sure of having made the proper entries:

1. A man pays \$100.00 on a \$250.00 used car, to be delivered later.

2. The car sales dept. has 10 gal. gas @ \$.20, (\$2.00), which we credit gas department (\$2.00) and debit under all other accounts to car sales expense (\$2.00). Should we also enter this on Form 2 under "cost of gas sold during month," and why so? M. I. NEWTON.

Chittenango, N. Y.

The \$100 paid on account of a used car to be delivered later would be debited on Form 1 under All Cash Received and under All Other Accounts on the Credit side you would credit Prepaid Deposit, and noting the name of the customer that paid it.

Another simple way of making this entry would be to the Customer's Account, which at the end of the month instead of being a Debit account would, of course, be a Credit or a Liability on your part.

The writer suggests that you use the first method, as this will show your proper Liability at the end of the month for \$100, which you will owe until you deliver the used car. Then this credit will apply the charge of \$250 that you would make when you deliver the used car.

When you sell gasoline to the Car Sales Department you simply treat the Car Sales Department as a customer, and instead of charging it under Customers' Accounts on Form 1 you charge this under the All Other Accounts column to an expense called Demonstrating or Car Sales Expense, Supplies, and the credit

would go under the Income account, gasoline on the credit side.

At the end of the month it is necessary to find the cost of all gasoline sold during the month for the reason that you placed this sale in your Income Account. On this particular item the cost of the gasoline which you sold would be just the same as the income that you received, for in charging a department in your own business, you charge at cost without any profit.

Assets and Liabilities

System Editor: We are inclosing herewith our check to the amount of \$12.00 and would kindly ask that you send us your Accounting System and such other descriptive matter that would be helpful in putting this system into effect.

We presume that you would enter in the books, prior to starting, only the assets and liabilities. If not, will you kindly advise, or if you have any suggestions to make, same will be greatly appreciated.

We are somewhat in doubt as to how we would post charges to our credit customers, or post any of the accounts as far as that is concerned, in order to take off a trial balance, or to know how much a certain customer owed, if he had not paid anything for several months. Also, how would we take care of our "Bills Payable" if our invoices were not paid for several months?

Can we, as a corporation, use your system so as to enable us to set up our plant accounts, fixtures, etc? We have considerable labor which must be prorated between different departments. How could we take care of this?

THE WHITE AUTO Co.

By Benj. H. Flesher, St. Paul, Minn.

If you will be good enough to refer to page 32 of the system pamphlet, you will find there a list of Asset and Liability accounts. These you will enter, before you start, in the back of your binder on Form 3, using the same form that you would use for Customer account sheets. These are kept separate from your customers' accounts and each sheet is headed with the name of the particular asset or liability that you have on your books.

You will, of course, find your various asset and liability accounts as of the first of the month in which you are installing the system. For example, on the first form you would determine the amount of cash that you have on hand

and in bank and this would constitute your first Asset account being entered on the Debit side of Form 3 and is placed in the back of your binder. You would determine, of course, the total amount of money due you from your customers, which would constitute your second asset. After you have found all of your Asset accounts and likewise all of your Liability accounts, the difference between the two would be your surplus, which would balance your statement and you would be ready to begin to operate the system.

This you would do by making your various entries on Forms 1 and 2 until the end of the month, then the result of these entries as shown at the bottom of the columns would be transferred either to the Debit or Credit side of the sheets that you place at the back of your binder and which are your Asset and Liability accounts.

How this is worked out you will see illustrated on Table No. 2 on page 30 of the System pamphlet.

More Entry Questions

System Editor: We have recently installed your system, as you know. Please advise us in your next issue how to make the following entries:

1—When we receive a Credit Memorandum from the factory for parts returned.

2—When we issue a Credit Memorandum to a customer for parts returned. As we understand it, customers' accounts are only posted from Form 1, so how could this entry go on Form 2?

3—At the end of each week we desire to lump together and charge up all gasoline and oil used in demonstrating cars. Which form should this go on and under what heads? Would an entry on Form 2 under Expense-Car Sales for the Debit, and under All Other Accounts-Gasoline and Oil Stock for the Credit, be correct?—JOHN J. GIBSON CO., Buffalo, N. Y.

In answer to your question No. 1, the entries would be made as follows: When you return a part to the factory this would be entered on Form 1 and debited under All Other Accounts on the Debit side to the Factory account, charging the factory at cost for the part returned and on the credit side you would credit this under All Other Accounts to your Stock or Inventory.

If you were returning a part to the factory that had been returned to you by a customer, your credit would be to your customer under Customers' Accounts on the Credit side of Form 1. You would, of course, have to credit the customer with the sale price, and in order to balance your entry you would have to make an additional entry on the Debit side under All Other Accounts, charging the profits that you had made on this part to Income, Parts and Accessories.

The first entry affecting your Stock account would, of course, be made on Form 2. It is possible to make such entries on Form 1 and at the end of

the month in your recapitulation of your All Other Accounts on Form 1 this entry to your Stock account would have to be added to the totals found on Form 2 under Stock account and posted to your ledger account in the back of the binder. This, I believe, will answer your question No. 2.

In answer to question No. 3 all charges to your demonstrating cars would be treated similar to a charge to a customer with the exception that the charge would be made at cost and instead of charging it under Customers' accounts on the debit side you would charge it under the All Other Accounts column to an account we will call Expense, Demonstrator. This expense, which would show up in your recapitulation of this column at the end of the month, would, of course, be added to your Car Sales expense that you will find at the end of the month on Form 2.

The Credit entry on this transaction would be made under your Income, Sales of Gasoline and Oil, but, as I stated above, it should be made at cost without any profit added.

At the end of the month you will, of course, go through your Income account to find the volume of Oil or Gasoline or Parts and Accessories or Cars that you have sold in order to get your entry for Cost of Goods Sold. For example, if you have sold 10 cars and this shows in your Income account under Car Sales, you would make a notation at the end of the month as to just what these cars cost you, and the total of these would be entered on Form 2 under Car Sales Expense and credited on the All Other Accounts column to your Stock account, Car Inventory. By which means you are charging yourself for the cost of the cars that you have sold, and when you credited the Stock account you took them out of your Assets for that account. In like manner, you would treat your Gas and Oil account and all other sales.

Can't Be Done

System Editor: We received bill of goods of parts and accessories amounting to \$2,132.

According to your system you debit the stock account and credit bills payable or cash. Why not debit "parts and accessories" account? This would save separating the stock account at the end of the month as in your plan, thus charging immediately the proper department. What advantage is there in your method of handling the stock item entailing the extra work?—SARATOGA SPRINGS GARAGE CO., Inc., Saratoga Springs, N. Y.

You state that you received a shipment of goods for Parts and Accessories Department amounting to \$2,132 and you ask if this could not be charged to the Parts and Accessories account rather than to the Stock account or Inventory.

Suppose, for example, that we charged this to the Parts and Accessories account and that during the month in which you are working, you sold only one-half of this stock, which amounted to \$1,066

plus your profit on the goods which we will say is \$382, making a total sale of \$1,448, which would show under your Income on Form 1, Parts and Accessories Department.

Now against this Income of \$1,448 you have charged an item of \$2,132 which would mean that you would show a loss in this department of your business in the month in which you are working. You will, of course, agree with me that this is wrong and that you really made a profit whereas your books show that you made a loss.

This is what we are after: that is, to show either a profit or loss and show it accurately in the month in which we are operating.

Tire Adjustment

System Editor: A customer's tire goes bad; he wants an adjustment; he buys a new one but doesn't want to pay until the adjustment is received; he does not take the same brand because the other did not give service.

We charge him with the new tire in the regular way, but later when the adjustment is received he has a credit of say \$5 due him and we must take a new tire of the kind he first had in order that he could obtain adjustment, so, of course, we receive it at an adjustment price and must credit his account. How would you enter this on the income and expense records?—L. E. WATSON, W. E. CLOVIS, St. Marys, West Virginia.

A customer's tire goes bad and you decide to make an adjustment and you receive from him his old tire and deliver him a new one. Treat the new tire simply as a trade sale, making the entries on one of your sales tickets and charging the customer on the Debit side of Form 1 and the Credit going under your Income account, Sale of Accessories, or if you use a special column, Sale of Tires.

Now you return the old tire to the factory for adjustment and we will say, for example, that if this tire was new, it would be worth \$20. The factory decided to allow you \$5 adjustment on this tire and they return you a new one and instead of charging you \$20 for it they send it to you for \$15.

Now you place the tire in your stock and its real value is \$20 and you make the following entry on Form 1. On the Debit side of the All Other Accounts, you debit your inventory, Tire Stock, \$20 and on the Credit side of Form 1 under All Other Accounts you credit "Bills Payable, A. B. Tire Co., \$15" and under Customers Accounts you credit the customer that returned the tire with \$5.

Now it is true that 90 per cent of the entries affecting your Stock and Bills Payable accounts would be made on Form 2 but at the end of the month when you show a recapitulation of the All Other Accounts on Form 1 these entries affecting your Stock and your Bills Payable accounts will have to be added to the amount which you will find on Form 2.

THE LAW

As it applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions.
Always send copies of contracts, notes, etc., to which you refer.

By George F. Kaiser

Montana Garagemen Have No Liens

Editor Motor World: I did some repairing and installed parts, etc., on a car, and have been unable to obtain settlement. I have had two attorneys try to collect the bill, but they, too, have been unsuccessful.

The work I did included installing Leak-Proof piston rings, grinding the valves, putting on new fenders, etc., etc. In putting the cylinder head back we cracked the waterjacket, and as I do not do brazing I had to send the car to another garage to have this work done. In trying to weld the crack they cracked the lead worse and let the water run into the cylinders, causing me a lot of trouble and extra work, and I finally had to have another mechanic do this part of the work over.

When I returned the car to the owner he was not satisfied, claiming the main bearings were loose, and I told him they would have to be taken up or refitted. He sent the car to another garage and still is dissatisfied. I asked the second garageman what work he did, and he advised me that taken up the bearings.

I would like to know what can be done about collecting the money due me. I would also like to know about the lien law of Montana.

Work All Specified

When the owner brought the car to me, he wanted nothing done to it but to have the valves ground, piston rings installed and new fenders put on, which is the reason I did not take up the bearings, etc.

I am just starting in business in this State and am very anxious to be better posted.—Arthur F. Bliss, Livingston, Mont.

Unfortunately in Montana you have not a garagemans' lien law. Section 5805 of the Montana Code, however, provides that every person who while lawfully in possession of an article of personal property, renders any service to the owner thereof by labor or skill employed for the making, repairing, protection, improvement, safe keeping or carriage thereof, has a special lien thereon dependent on possession for the compensation, if any, which is due to him from the owner for such service.

Under this law a Montana garageman has a lien as long as he does not let the car go out of his possession. When he does let the car go out of his possession he loses his lien. If you had two attorneys try to collect your bill and they were both unsuccessful, it would seem to be time to charge the amount up to your profit and loss account.

Workmen's Compensation Case

The first criminal prosecution for violation of the New York Workmens' Compensation Act came up in the Court of Special Sessions a few days ago. It was a case of a clothing manufacturer who had failed to insure his workmen under the Compensation Act. The manufacturer pleaded guilty and was fined.

As this seems to be the start of a campaign to criminally prosecute employers who fail to insure their employees under the Compensation Act, it will be well for dealers who have not done this to watch out.

Dealer or Agent

Editor Motor World: As an interested reader of your Angles of the Law in Motor World, it would seem to me a good idea if the terms agent and dealer were clearly defined and the difference emphasized.

Possibly this already has been done in some previous issue, but if not I would like either a personal answer or a reply through Motor World at an early date.—F. W. Munro, Detroit, Mich., 55 Peterboro Avenue.

The meaning of the words agent and dealer, so far as I know, has not been defined by the courts. It is quite true that often we will speak of a dealer when we really mean a man who is an agent and, on the other hand, we will speak of an agent when we mean a dealer. Very often a man is both, so we are correct by whichever name we term him. The only difference between the two seems to be that a dealer is a person who deals in, that is, buys or sells motor vehicles, supplies or accessories for profit on his own account, while an agent, if we use the term correctly, does not sell the product, he handles on his own account, but for a principal, who gives him a salary or a commission for said labor.

New York Garagemen Draft Model Lien

The garagemen of New York State are still trying to have an adequate lien law put through the New York legislature, and have this year again introduced the bill which was introduced through the efforts of the United Garage Association last year and which failed to pass. The New York Garage Association this year stands sponsor for the bill. For the benefit of the garagemen of other States who are interested in seeing a good lien law introduced in their own legislature, the New York bill is printed below.

STATE OF NEW YORK.

No. 411.

Int. 395.

IN ASSEMBLY

January 30, 1917.

Introduced by Mr. McWHINNEY, read once and referred to the Committee on the Judiciary.

AN ACT

To amend the lien law, in relation to lien of bailee of motor vehicles.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section one hundred and eighty-four of chapter thirty-eight of the laws of nineteen hundred and nine, entitled "An act in relation to liens, constituting chapter thirty-three of the consolidated laws," is hereby amended to read as follows: Par. 184. Lien of bailee of motor vehicles. A person keeping a garage or place for the storage, maintenance, keeping or repair of motor vehicles, as defined by article eleven of the highway law, and who in connection therewith stores, maintains, keeps or repairs any motor vehicle or furnishes gasoline or other supplies therefor at the request or with the consent of the owner, whether such owner be a conditional vendee or a mortgagor remaining in possession or otherwise, has a lien upon such motor vehicle for the sum due for such storing, maintaining, keeping or repairing of such motor vehicle, or for furnishing gasoline or other supplies therefor, and may detain such motor vehicle at any time it may be lawfully in his possession until such sum is paid. The lien of such bailee on such motor vehicle shall extend to his right of possession thereof at all times until such sum is paid; and such bailee may by an action in replevin retake possession of the same from any person or place, whatever found, and hold the same pursuant to the provisions of this chapter, for such storage, maintenance, keeping and repair.

The thirty-first in a series showing

Dealers Who Have Made Good

WILLIAM M. TURNBULL, executive head of the Colonial Automobile Co., Hartford, Conn., has spent the past nine years in the sale of motor cars, principally the Studebaker. In fact, the Studebaker is really a family affair and the manner in which the subject of this sketch got in the car selling business is interesting.

Born in Providence, R. I., August 27, 1887, Turnbull after leaving school entered the office of his father, a real estate operator. In the course of events the family settled in Willimantic. They had an idea a motor car would be a nice thing to possess and looked about for something. Selection finally simmered down to a used E. M. F. This old car worked out so well the junior Turnbull wanted to sell cars as well as drive them.

Then followed the organization of the Turnbull Auto Co. in Willimantic, the acquisition of the Studebaker representation in Windham County and "Bill's" work all cut out for him. He arrived safely to the tune of forty Studebakers a year. He also had a chance at the Hudson.

In 1913 he went to Hartford as a salesman for George D. Knox, Peerless and Hudson distributor. His present situation did not please him. As he said, "I did not like the idea of working for someone else and missing all the glory as well as some other minor considerations. I preferred to work for Turnbull." In August, 1914, he organized the Colonial Automobile Co., opening the salesroom now occupied at 1279 Main street.

The Colonial Automobile Co. sold 287 Studebakers last season and this season Turnbull is to have 350 cars. He has sold a great many up to the present time and is fairly well stocked for the spring trade. In the past year Turnbull has doubled the salesroom capacity, equipped a service station and put in a large stock of parts. He has four salesmen and goes after business hard. He has unbounded faith in the Studebaker and the Studebaker organization and endeavors to treat his customers right.



William M. Turnbull

Hartford, Conn.

Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are an-

swered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

This Idea Should Be Used In Every Repairshop

WHEREVER this method of getting at the under part of the motor has been employed all the men are enthusiastic in its praise. It enables work to be done in half the time, and yet the work is better because the mechanic is fully at ease. Adjusting connecting-rod bearings becomes as pleasant a job as cleaning spark plugs. This idea is preferable to a pit be-

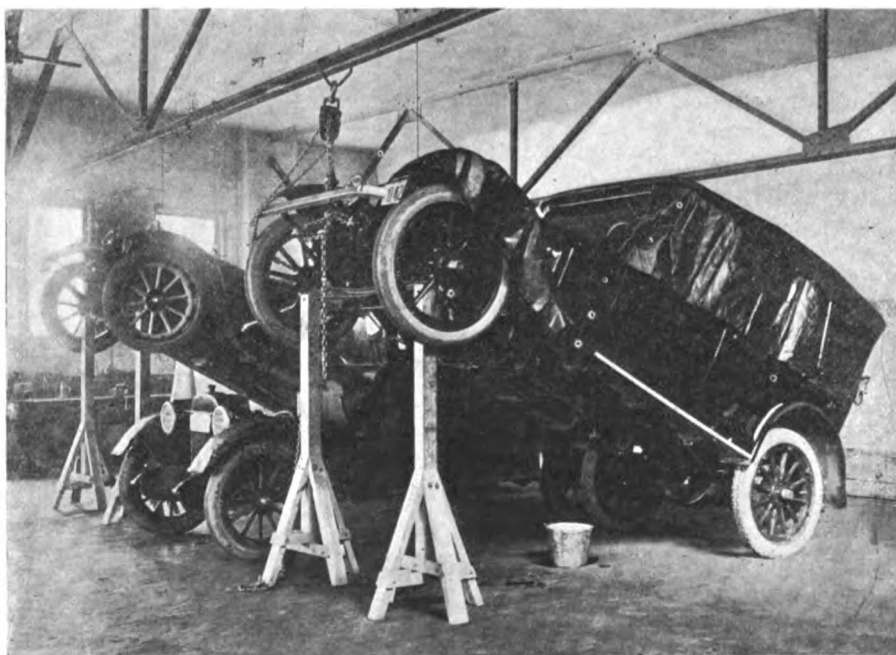
cause there is no climbing in and out. There are many forms of stands, but the ones shown are as good as any. The car is raised by the chain block and tackle attached to the overhead railing. This shortcut was sent in by C. E. Carroll, secretary Chalmers Motor Co. of Minnesota, Minneapolis, Minn., and his letter is reproduced below.

Editor Motor World: The photograph shows the efficient method used in our repairshop when working on the motor. The front end is hoisted up and placed on jacks, enabling a man to work in a light, clean space. He is only within 4 or 5 feet of his bench and tools, and his work is straight with his line of vision.

This method has proven a big help in

satisfying owners, as we are able to give them nearly twice as much work in an hour's time as was possible with the old method.

It also does away with the dangerous and dirty pit, or the necessity of a man lying on his back under a car in an uncomfortable position.—C. E. Carroll, secretary Chalmers Motor Co. of Minnesota, Inc.



The most convenient way of working under a car

How to Figure Horsepower

Editor Motor World:—Kindly tell me how to figure horse power on automobile engines.—A. W. Lerwick, 114 East Wilson Street, Madison, Wis.

Answer.—The ordinary horse power formula is the N. A. C. C., also known as the S. A. E. formula. This formula is:

$$\text{H.P.} = \frac{D^2 N}{2.5}$$

where D equals the cylinder bore in inches and N equals the number of cylinders. It has been worked out upon the assumption that the piston speed is 1000 ft. per min. and that the mean effective pressure is 90 lb. per sq. in. Inasmuch as the piston speeds of modern engines run up as high as 2000 to 3000 ft. per min., and the mean effective pressures per sq. in. go up to 110 to 120 lb., you can see that this formula is far from accurate. In some cases it gives a rating which is only one-third what the actual horse power development of the motor is.

A much better formula is the following:

$$\text{H.P.} = \frac{D^2 N S R}{15,000}$$

in which R equals the revolutions per minute, N equals the number of cylinders, S equals the stroke in inches and D equals the bore in inches. You will probably have to make a guess at what the r.p.m. is in any particular case, but even so, this will be better than not taking it into account at all, which is the case when you use the other formula.

If this explanation is not clear to you, kindly let us know and we will go into the matter further.

Directions for Washing Automobiles

Editor Motor World: Will you please tell me where I can find the latest information on the washing of automobiles, also where I can purchase the best appliances for rapid washing in a garage.—J. S. Pattershall, 25 Palmer Avenue, Dayton.

Answer.—A good method to follow in cleaning a car is as follows: First brush the top thoroughly, then clean the upholstery and brush out the floor.

Then with a gentle stream from a hose, (not equipped with a nozzle) wash away all loose dust and soften the mud on the body and running gear.

Mop the body off very gently with a soft sponge, using cold water with some pure soap in it. Be sure that the soap has neither alkali nor acid in it. Then rinse the body off with a hose using a sponge to facilitate the operation.

Proceed to the running gear using another sponge just for this purpose. Never interchange these sponges as the latter one will be too dirty to use on the body. The same applies to chamois cloths which are used for wiping dry, as described later. You should have one

chamois for the body and another for the running gear.

Wash the running gear clean with soapy water and sponge, and then rinse it with a hose and the sponge.

Then wipe the body and running gear dry.

Hot water and strong soap solution injure the varnish, but nevertheless, there are many who prefer to use a strong soap solution and hot water, particularly on the running gear because of the great amount of grease and dirt on it, notwithstanding the fact that this combination is much harder on the varnish than cold water.

Kerosene or butter are of aid in removing tar stains.

Your washing equipment should consist of two or three pails, two good sponges and two good chamois cloths as well as the necessary brushes, for sweeping the top and the upholstery and cloths for polishing the glass and metal parts.

You should have some sort of a rotary washer so that it will not be necessary to drag the hose all around the car.

It is difficult to say which patent washer you should buy, but we believe you will be satisfied with any one, or we shall be glad to describe a type which you can make very readily yourself and which is very satisfactory.

Bon-Ami is excellent for polishing the glass.

Profitable Garage and Shop Rates

Editor Motor World: In the Feb. 21 issue of MOTOR WORLD on page 47 you published the schedule of prices used by the Cotillion Garage, Portland, Ore. In view of the fact that our local has been going into the costs on these matters in order to establish some sort of a general basis for co-operation without violating the anti-trust law, I would appreciate a statement from you that the prices quoted will show a profit. I will bet a dollar to a doughnut that these people are losing money on their garage business and don't know it and I don't care where they are located or how low their overhead may be. I am not basing my opinions on 6 months' records but on a period of several years.

Our ideas of what the rates should be are embodied in a Schedule of Rates (shown herewith). Although these rates were not agreed upon by our local association, (not even verbally) we still have definite assurance that at least ninety per cent of our service stations, garages and separate repair shops will adopt them.

They are the result of a very careful analysis of conditions in all branches of the trade by twelve representative men of long years of experience in these various branches.

A little later we expect to have a separate schedule covering electric machines.

At a glance, it would appear that our storage rates are somewhat low, but

after a careful study of the extras for special equipment and special service, you will find that they compare very favorably with rates charged in other cities of this size.

We are using a heavy six-ply cardboard 19½ x 27½ in. for hanging or tacking up on walls, and a lighter three-ply sheet for mailing and framing.—Geo. C. Bohn, Director Ohio Trades Assn., The Reliance Truck and Garage Co., Columbus, Ohio.

P. S. We are all boosting the Ohio and Nat'l Auto Trades Assn.—G. C. B.

Answer.—Our purpose in publishing the prices you refer to, was merely to show other garagemen what one garageman was doing in this line. It is impossible for us to say whether this particular man can make money using these rates or not, because we know nothing of local conditions.

Curing Piston Slap

Usually the only way to cure loud piston slaps is by reboring the worn cylinders and fitting larger pistons. Piston slap may be excessive even when the compression is so satisfactory that reboring for this reason alone would not be required for many thousand miles more. A solution of the difficulty is to cushion the pistons by fitting special rings with a series of flat springs behind them which not only expand the rings but also tend to hold the piston in the center of the cylinder. Rings of this type have been used by various manufacturers at different times but their use to cure piston slap is new.—George W. Short, Winton Motor Car Co., New York.

Poor steering is sometimes due to one of the front demountable rims being placed on backwards.

SCHEDULE OF RATES

MONTHLY STORAGE, CLEANING & OILING

Permanent Stall—Night and Day "Service"
Wash or dry clean daily—inside and out, top, glass and metal (as needed)
Grease caps, valves, differential, transmission & universal joints filled
Tires inflated—Radiators filled—Battery filled

ALL CARS OVER
110" WHEELBASE

20.00

ALL CARS UP TO
110" WHEELBASE

19.00

SPECIAL
EQUIPMENT

WIRE WHEELS \$1 EXTRA
GLASS ENCLOSED
BODIES \$2 EXTRA

MONTHLY STORAGE & CLEANING

Permanent Stall—Night and Day "Service"
Wash or dry clean daily—inside and out, top, glass and metal (as needed)
Tires inflated—Radiators filled

17.00

16.00

WIRE WHEELS \$1 EXTRA
GLASS ENCLOSED
BODIES \$2 EXTRA

MONTHLY NIGHT & DAY STORAGE

Permanent Stall—Night and Day "Service"

10.00

9.00

— OR —

Storage Space (unreserved) "Service" limited

9.00

8.00

MONTHLY DAY STORAGE

Storage Space 7:00 a. m. to 6:00 p. m. (Except Sundays)

6.00

5.00

MONTHLY DEAD STORAGE

Limited Space—Car not used—Minimum period 3 months

6.00

5.00

TRANSIENT STORAGE—DAILY & WEEKLY

Night Storage Up to 18 hours
Day or Evening " " 5 "
Weekly Rate (seven consecutive nights or less)

.75

and 5c. per hour thereafter.

.35

5c.

3.50 in advance.

NOTE:

(Any car on monthly service remaining less than one week in any month, will be charged at transient rates. Any period from one to ten days in any month will be charged at the transient rates. All cars on monthly service will be considered a month. All cars on monthly service will be considered a month. All cars on monthly service will be considered a month.)

WASHING

Includes cleaning inside and out, top, glass and metal
Cars covered with clay, road oil or grease, will be charged extra according to condition.

1.50

1.25

WIRE WHEELS 50c. EXTRA

TIRE REPAIRS

Tube puncture (single) .50
Each additional puncture in same tube .25
"Blow out" in tube .75
Taking rim off wheel and replacing .25
Taking casing off rim and replacing .25

6" Section 3" Casing 3.00
3 1/2" " 3.00
4" " 4.00
5" " 5.00
6" " 6.00
6 1/2" " 6.00

Surface cuts or blisters, from inside repairs on casings, .75 up

" " " " " 2.00

"Service Car" extra according to distance, from 50c. up.

BATTERY CHARGING

6 volt type .50
12 " " .75
16 " " .85
18 " " 1.00
24 " " 1.25

These prices do not include charging of batteries. All charges not requiring more than 15 min. 25c. Batteries requiring more time to take out and replace, will be charged for at regular labor rates.

MECHANICS' LABOR

ALL WORK GUARANTEED

1.00 PER HOUR

Cars not called for within 24 hours after completion of work, will be charged regular charge rates.

TOWING & ROAD SERVICE

At regular labor rates plus .25 per mile for service car.
No charge less than 1.50—With towing truck 2.00.

MISCELLANEOUS

Prices do not offer "tips" to employees. We have a standard schedule of charges for all kinds of services furnished. Employees appreciate that service to you means benefit to us and to them as well. Please report any discrepancy or lack of attention. Promptly as work done on Sundays that can be done on other days—except actual emergencies.

We assume no responsibility for damages from fire, or for the loss of articles left in car.

Schedule of rates which will probably be adopted by 90 per cent of Columbus, O., garagemen

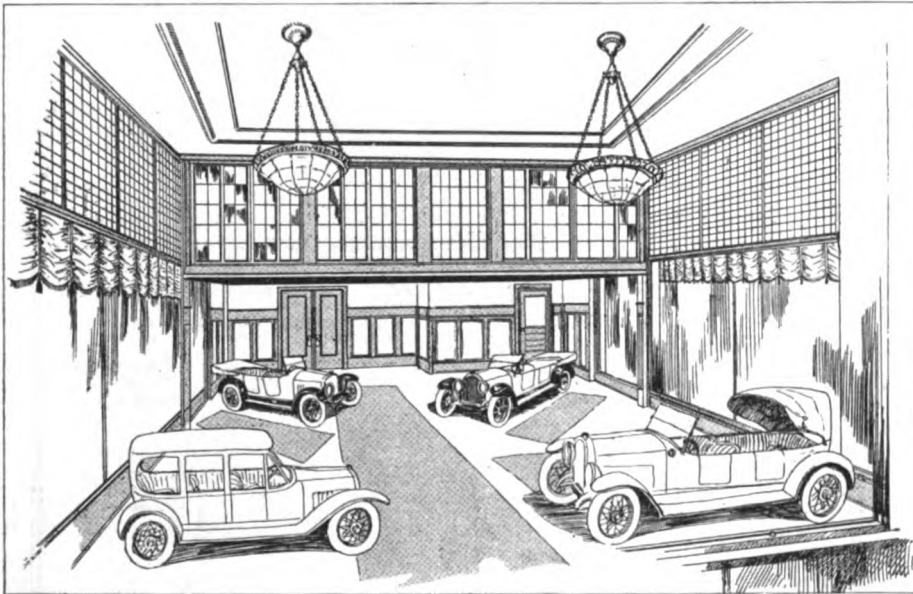
**GARAGES
SHOWROOMS
REPAIRSHOPS**

SCIENTIFIC CONSTRUCTION

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

Compactly Arranged Dealer Building



Upper—View of showroom from just inside the front door. The mezzanine balcony containing the offices is seen at the rear. The double doors at the left open into the garage and the single door at the right goes to the balcony stairway

Lower—The feature of the plan is the compact arrangement of offices and shop. The balcony stairway may be reached either from the showroom or the street. A short stairway connects the balcony with the second floor. The parts stockroom is convenient for both mechanics and owners

Feature Is Mezzanine Balcony Connect- ing Showroom and Shop

Editor Motor World: Here are the specifications for plan of garage to be erected on a corner lot 42 x 120 ft. To cost between \$8,000 and \$10,000. Two floors and cellar (for furnace).

Lower floor: Sales room, approximately 40 x 26. Freight elevator, wash rack and toilet. Also space for storing from eight to ten cars, if possible. Car entrances Third Street. Car entrance into show room (from rear).

Balcony in rear of salesroom with steps tapering up from this room. Three offices on balcony so placed as to have ample light. (Note, the south side of the building will have very poor light on account of a tall neighboring building being within 20 ft.) Offices should be accessible to the second floor from the rear if possible.

Sales room should face Fifth Avenue. Ample space required for three or four

cars and furniture. (Do not want room to appear crowded).

Second floor: Plate glass windows similar to first floor. Repair shop, stock room, toilet and washroom, and space for storing cars. Plenty of windows on Third Street side.—Dudley L. Child, New York Motor Sales Corporation, Troy, N. Y.

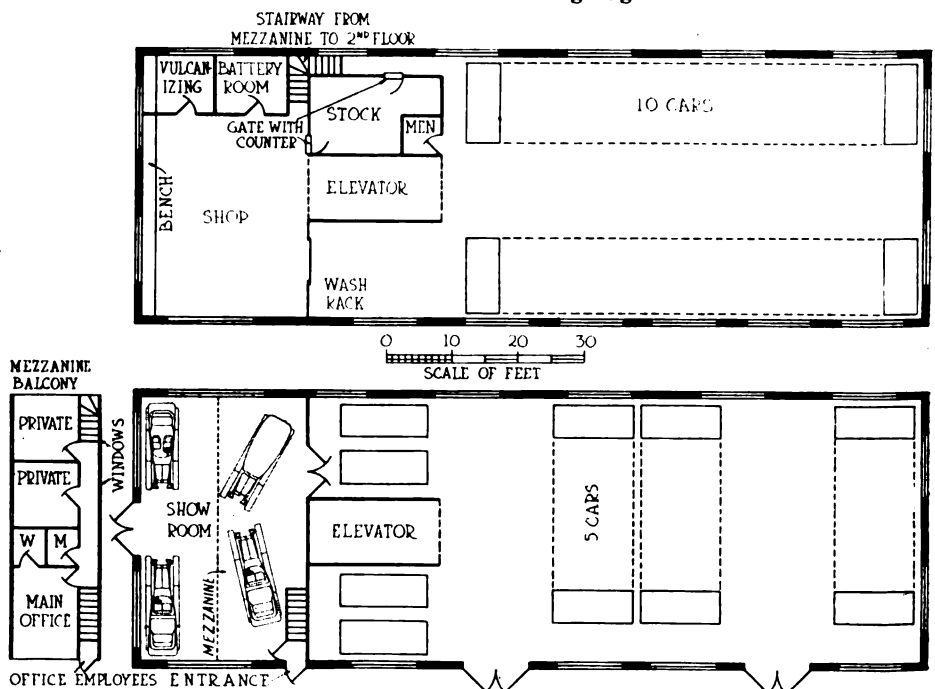
Answer.—This plan has been very carefully worked out and the location of each detail has only been selected after carefully considering the advantages and disadvantages.

The offices have been placed on the mezzanine balcony and if you have windows, front and rear as well as windows in the partition between the showroom and the garage, you should be able to obtain plenty of light and ventilation.

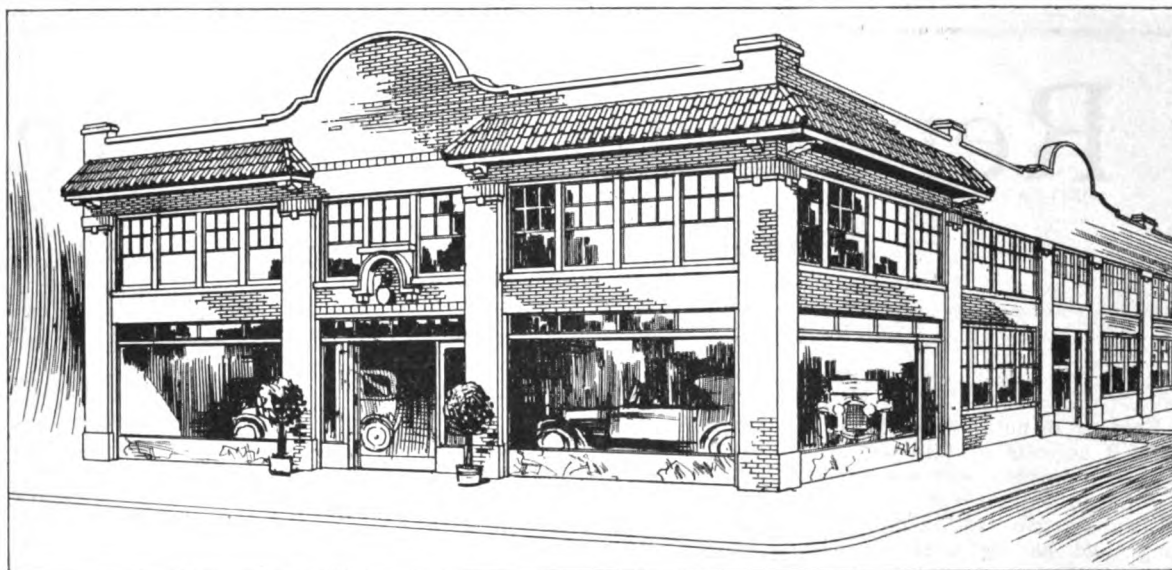
The office employees' entrance is so located that they can enter the offices directly without passing through either the showroom or the garage.

The stockroom is conveniently located both for customers desiring to purchase stock and also for men in the shop who desire parts. This room may also be used as the tool room.

You may question the advisability of placing the elevator in the first position we have selected but this is really a splendid place for it inasmuch as it is a direct entrance to the shop as well as to the garage.



Complete dealer establishment with showroom and garage on the first floor and repair shop and garage on the second. Offices are on a mezzanine balcony in the showroom.



Modern Accessory Store Requires Attractive Showcases

A LARGE variety of showcases for all purposes is made by the Grand Rapids Show Case Co., Grand Rapids, Mich. The styles shown are equipped with the new sanitary base, which allows the floor underneath to be swept.

The American Beauty display case No. 4200 has a plate glass top, front and ends, plate mirror, ball bearing doors, dust strips, springs and rubber bumpers. There are two adjustable plate shelves 10 and 14 in. wide. The bottom is lined with dark green woolen felt. It is made in standard lengths of 6, 8 and 10 ft.,

height 40 in., width 24 in. Price, \$16 per running foot.

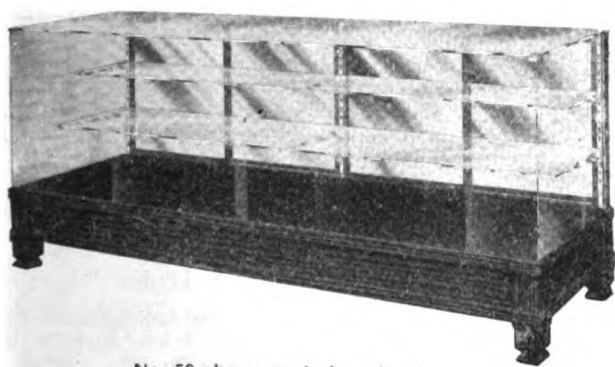
The No. 1300 has a plate glass top with $\frac{1}{8}$ -in. bevel, double strength A glass front, ends and doors, two adjustable wood shelves 10 and 14 in., and a finished wood bottom. The legs are metal. Other details are the same as the preceding. Price, \$7.40 per running foot.

The No. 5930 is particularly suited for displaying a variety of small articles. Each compartment is a drawer, access to which is obtained by pulling it to the

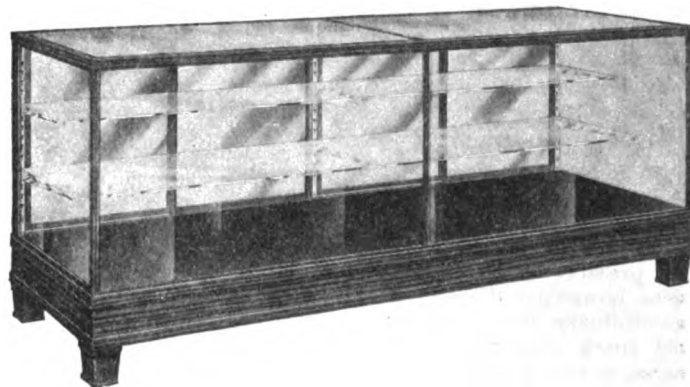
rear. The showcase has a plate glass top with $\frac{1}{2}$ in. bevel, double strength A glass front and ends, cup pull on back and label holder on front of each drawer. Price, \$12 per running foot.

The No. 59 is practically all glass, wood not even being used to reinforce the edges. The shelves are 10 and 14 in. wide and the bottom is wood. The other details are similar to the one described above. Price, \$6.20 per foot.

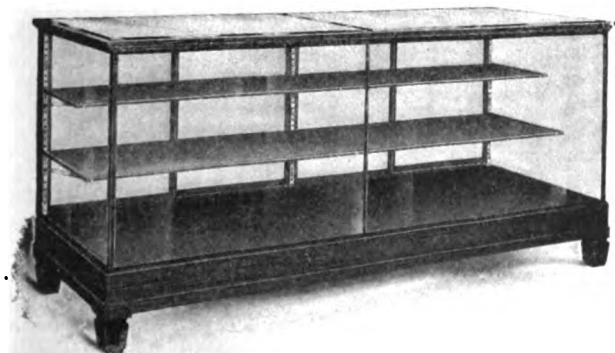
These prices are for cases built of oak or birch, and finished in any oak or mahogany color.



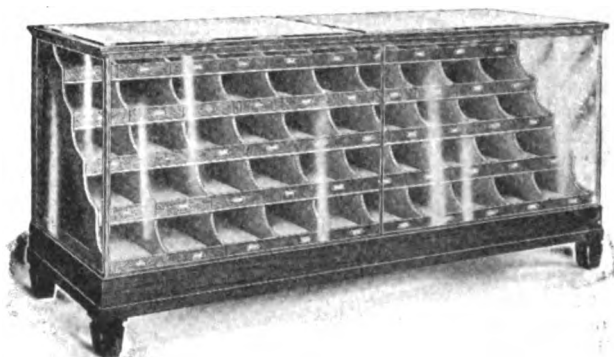
No. 50 showcase is largely glass



No. 1300 showcase with glass shelves



No. 4200 showcase has wood shelves



No. 5930 showcase with display drawers

Repairshop Shortcuts

From The Motor World Roadman

(No. 1124) CIRCUIT TESTING SET

This is a portable electrical testing set. It consists of four dry cells, carried in a wooden box, and connected to a common electric bell. The circuit is broken by two test leads, about 4 ft. long, and having solid copper points. One of these test points is placed on each end of the wire being tested. If the wire is all right the bell rings, if broken it does not ring, unless the wire is grounded. This may be tested by touching first one and then the other of the leads to the frame of the car. A ring in either case denotes a grounded wire.—A. L. Johnson, Tremain Rankin Garage, Fort Dodge, Iowa.

(No. 1125) SOCKET WRENCH

A durable and satisfactory set of socket wrenches may be made from old wristpins. One end of the pin is drawn down and brazed onto an octagonal piece of chisel rod, which forms a shank. To this a cross-piece is brazed, forming a handle. The end of the wrist-pin is then formed into a socket over the nut it is to fit. T-wrenches, L-wrenches and special wrenches may be made in this manner.—A. L. Johnson, Tremain Rankin Garage, Fort Dodge, Iowa.

(No. 1126) OIL TRANSFERRING

It is difficult to transfer oil from the common oil barrel to a smaller container unless some special outfit is at hand, such as illustrated. The oil is forced by air pressure from the barrel. Air pressure is applied through a valve that is an ordinary tire valve soldered into an old spark plug shell, which in turn is screwed into a hole in the barrel. The oil is delivered through a bent brass pipe, passing through a second spark plug bushing, also screwed into a hole in the barrel. Packing is placed between the bushing of the plug and the shell, so that the tube may be adjusted to any barrel, and the amount of oil is readily regulated by the pressure applied.—R. H. Brown, Fort Dodge Auto Co., Fort Dodge, Iowa.

(No. 1127) WORK CARD HOLDER

The workmans' order or work card may be held on the job by means of this card holder. It is thin sheet metal, cut as long as the card and turned over at the edges. The holder offers a stiff backing when writing on the card. A strap secures the holder to either hood

or windshield.—Ernest Coffman, Ford Service Station, Louisville, Ky.

(No. 1128) FORD TRANSMISSION BAND CLAMP

This clamp is used to hold Ford transmission bands together while replacing the transmission cover. It is made of spring steel $\frac{1}{2}$ in. wide and $\frac{3}{32}$ in. thick, bent into the form of a U, having legs $3\frac{3}{8}$ in. long and being $2\frac{7}{16}$ in. across. One of these is clamped over the lugs on the transmission bands before replacing the cover and removed after the cover is bolted in place.—Charles M. Ford, Moore Automobile Co., Grand Forks, N. D.

(No. 1129) SHOP KEY TAG

All departments of the shop should be locked, unless some responsible person is present. Yet all keys should be instantly available to the proper persons. If each key be tagged with a common suit case tag, and lettered with the department it fits, and hung in the main office, this will be accomplished. Each key should have a hook on a keyboard that is always in sight of some of the office force.—R. E. Beedee, Interstate Auto & Supply Co., Davenport, Iowa.

(No. 1130) TIRE GAGE PROTECTION

Tire testing gages are essential to free air service, but being small are easily mislaid or stolen. By securing the gage to a 6-ft. length of small chain, attached to a leather ring, the gage is rendered difficult to mislay or carry away. The gage may be hung close to the air nozzle and swung into using position from the hook, or removed and carried to the tire to be tested.—R. E. Beedee, Interstate Auto & Supply Co., Davenport, Iowa.

(No. 1131) INSTRUCTION BOOK FILE

Instruction books are usually kept in the repairshop without much order or system, and considerable time is lost in hunting for the desired book. By the provision of a simple wooden file, as shown, the desired book may be seen and obtained instantly. It comprises a wooden box, divided into compartments. Each compartment is labeled with the book it is to hold.—R. E. Beedee, Interstate Auto & Supply Co., Davenport, Iowa.

(No. 1132) ENGINE CLEANER

A gasoline or kerosene spray, acting under air pressure, will quickly remove dirt and grease from the engine or chassis. A device for forming this spray is shown. It comprises a metal tank, holding the cleaning solution, and an aspirator for forming the spray. This aspirator is a copper pipe, passing through the center of the tank, one end being connected to the air line and the other being drawn down into a nozzle. A small copper tube connects this pipe, and the solution, so that the solution is drawn from the tank and forced into a spray by the passing air.—R. E. Beedee, Interstate Auto & Supply Co., Fort Dodge, Iowa.

(No. 1133) BATTERY SERVICE KIT

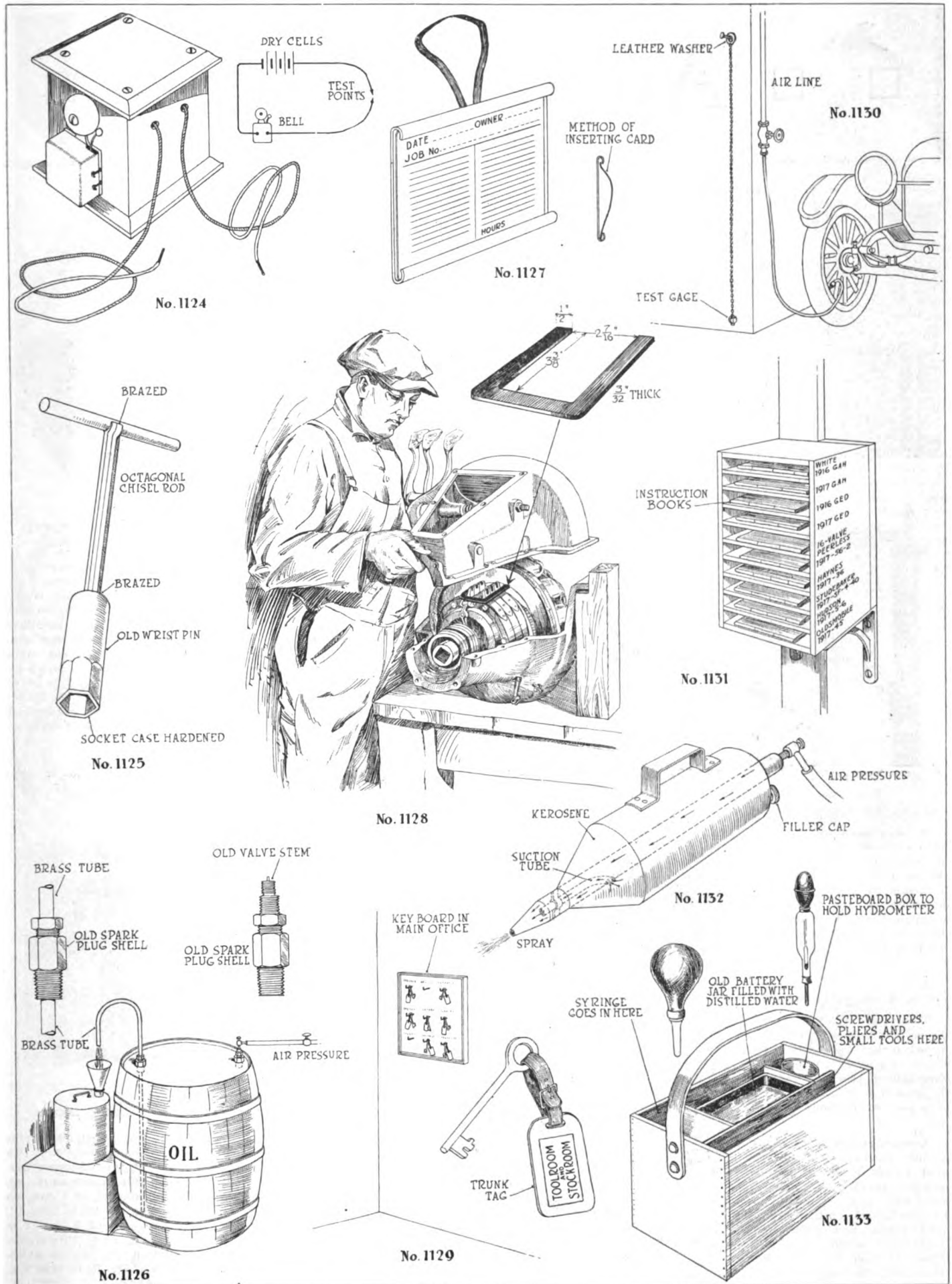
This kit contains all the tools necessary for hydrometer testing and replenishing the water supply of a storage battery. A rectangular box is divided into four compartments, as shown. One contains the hydrometer, in a cylindrical pasteboard box. The second contains distilled water, in an old battery jar; a third holds a syringe for placing the water in the battery. The third space runs the entire length of the box, and is used for miscellaneous tools, such as a screwdriver, pliers, ammeter, etc. By the use of this box all the battery tools are kept together, and no time is lost hunting for mislaid parts.—J. P. Hand, Willard Service Station, Davenport, Iowa.

Ball Bearings for Cutting Gasket Holes

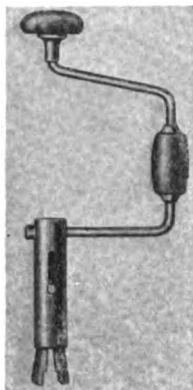
Ball bearings of various sizes are useful in cutting small holes, such as for studs, in gaskets. After the gasket is cut to shape by hammering around the edge of the gasket flange, a ball bearing is put over the hole and hammered until the hole is cut in the gasket. This method produces sharply defined edges. In cutting paper gaskets it is advisable to grease the paper first so that it will stick to the surface.

Marking Leaks in Radiators

When testing a honeycomb radiator for leaks the position of the cracks as indicated by the bubbles may be marked by placing split rivets at every point where leakage occurs. By this method no time is wasted in looking for the defective spots when soldering, and there is no danger of overlooking any place.



□ □ Accessories □ □

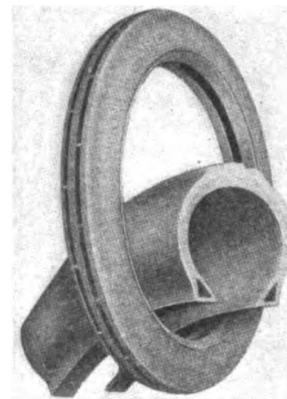


WATSON VENTILATOR FOR FORDS

An adjustable ventilator for Fords which may readily be installed and is designed so the shutter may be placed in any position. Glass-Evans Auto Co., Grand Island, Neb.

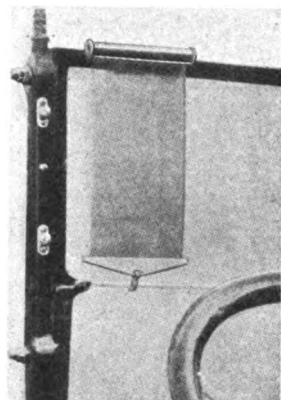
UTILITY RIM WRENCH

Although designed for demountable rims, it may be used in many other places, and since it is adjustable, it practically takes the place of a socket wrench set. It can be folded when not in use. Price \$1.50—Hill Pump & Valve Co., Archer Ave. & Canal St., Chicago.



KELLY-SPRINGFIELD DRIVING TIRE

A cord type primarily designed for front wheels. Its narrow, groove tread eliminates much road friction and traction wave, thus facilitating the steering of the car. It supersedes the old style smooth tread in 4½ and 5 in. sizes and its weight is practically the same as the Kant-Slip tread. It is guaranteed for 6000 miles—Kelly-Springfield Co.



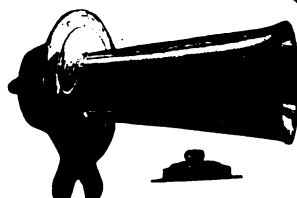
SALES GLARE STOPPER

It is a 5x10-in., colored, celluloid curtain which may be rolled up when not in use. When drawn out, it is held in place by a clip which is attached to the windshield division. Price \$1—Sales Publicity Co., Carlton Court Bldg., Buffalo, N. Y.

A. S. K. POLISHES

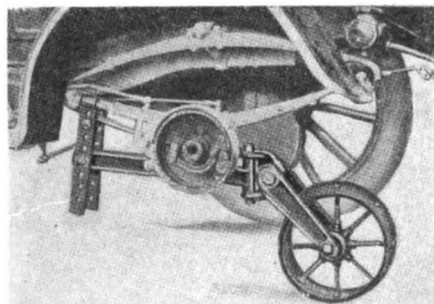
This metal polish is for brass or nickel and is water-proof in that water has practically no effect on the surface after it has been treated. It contains no acid or grit and has no tendency to settle.

Another polish is for automobile bodies and furniture and leaves a clean, highly polished surface to which no dust will stick. It is said to be excellent for leather, enameled lamps and glass and makes old varnish look like new. Dayton Varnish Co., Bacon St., Dayton, O.



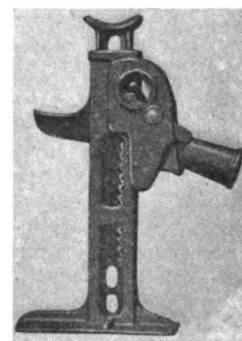
HECO ELECTRIC MAGNETO HORN

It is designed for Fords and it is operated from the magneto, yet has no effect on the lights. There is an adjustment which controls both the volume of sound and the current consumption. Price \$2—Heinze Electric Co., Lowell, Mass.



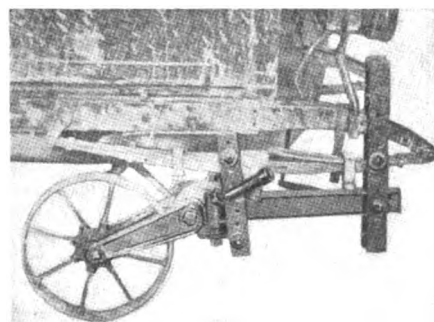
ESTA WATER AUXILIATOR

A device which introduces water vapor into the manifold for the purpose of increasing the power, economy and speed, and eliminating carbon deposit. It consists of an aluminum tank mounted on the dash and which is half filled with water. There is an air opening in the top through which air is drawn in and brought into contact with the water, thus vaporizing some of it, and carrying it to the manifold. Price \$15—Esta Water Auxiliator Co., 1916 Broadway, New York.



RELIABLE JACKS

The line includes screw jacks, ratchet jacks and tire savers. A typical model is a ratchet type known as No. 41 with a capacity of 1 ton, an adjustment of 10 to 16½ in. and a weight of 6 lb. It is malleable iron throughout and has a step for low axles. —Price \$1.50. Elite Mfg. Co., Ashland, O.



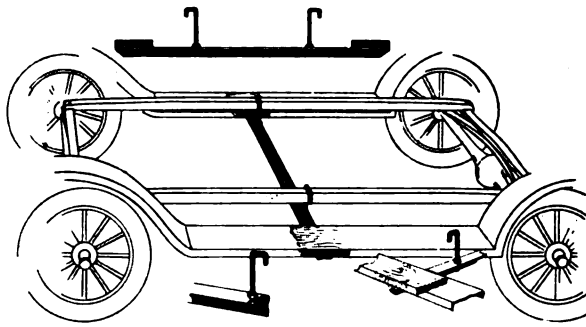
GUSS EMERGENCY WHEEL

The wheel is designed for front or rear application to any car which has had a wheel or axle disabled. It is readily attached and is light and strong. It is swiveled so that steering is easy. Price \$25—O. G. Guss Co., Delphus, Ohio.



HANDY SERVICE CABINET

A cabinet with small drawers for carrying screws, bolts, nuts, repair parts, spark plugs, etc. The cabinet is varnished oak except for the sides and bottoms of the drawers, which are galvanized steel. There are twelve drawers, 3x3x12, and three larger ones, 6x3x12; each drawer is fitted with a combination pull and card holder and on the side is a square label for stock records. Price \$5—Stevens & Co., 375 Broadway, New York.

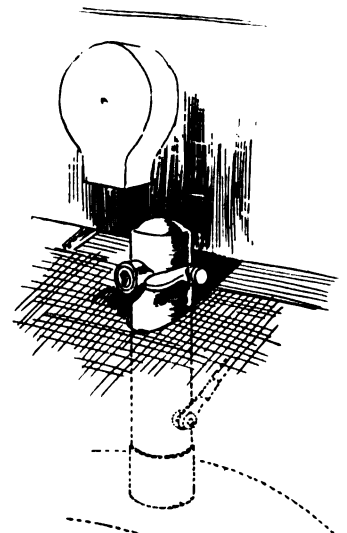


DOW RUNNINGBOARD BRACE

A cross member which is readily attached to the Ford car for the purpose of reinforcing the running boards and fenders, and thus reducing noise in addition to making these parts more solid. Price \$3—Dow Wire & Iron Wks., Louisville, Ky.

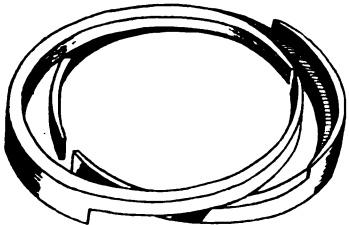
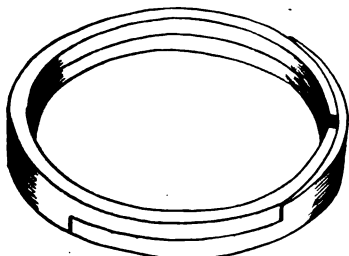
SELF-CLEANING SPARK PLUG

The Autocraft plug formerly marketed by the Craftsmen Corp., Chicago, has been purchased by the D & D Co., 20 E. Jackson Blvd., Chicago, and will be known as the D & D plug. It is featured by a loose ball terminal which is designed to keep the sparking points clean, since it is free to move within certain limits.



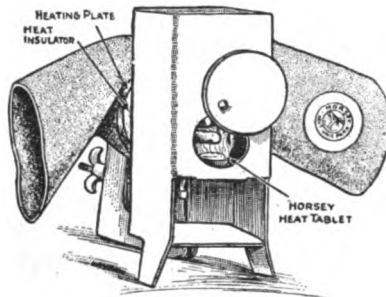
DETROIT CARTRIDGE LOCK

Designed for Fords. It is a magneto circuit breaker enclosed in a case-hardened steel tube which covers the magneto connecting plug and extends up through the floor boards. Pushing a foot lever on the lock automatically shuts off the engine and locks the ignition. A serial key is used to unlock the car. The regular coil switch is discarded. It is impossible to make a new connection with the magneto when this is in place. Price \$5—Wallace C. Hood Service Bureau, Distributor, Detroit.



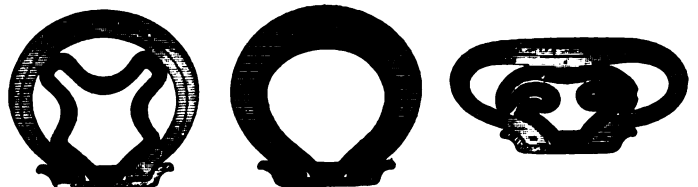
JOINTLESS PISTON RING

A two-piece eccentric ring in which the joint in one section is covered by the other section—Detroit Piston Ring Co., Detroit.



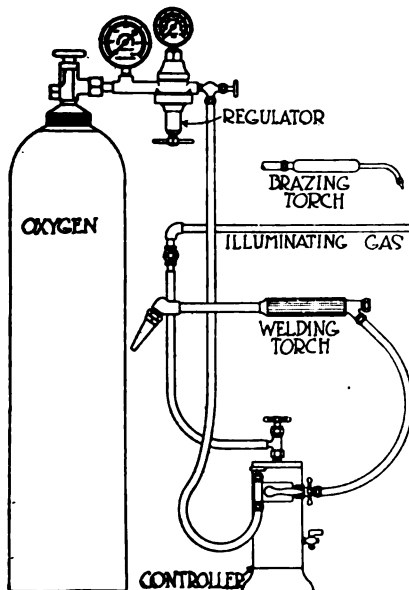
HORSEY'S DOLLAR VULCANIZER

An inner tube vulcanizer which uses a tablet heating unit furnished with each patch. It is made to burn freely without odor or smoking and is not affected by dampness. There is an insulating plate which keeps the shell cool. It is compact and light, weighing only 1 lb. Price, with complete equipment for 6 patches, \$1—Horsey Mfg. Co., Cleveland, O.



COMPRESSION INNER TUBE

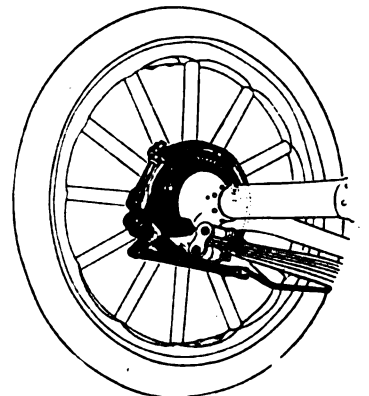
The tube deflated is shown in the upper left, inflated at the center, and at the right is shown what happens when a blowout occurs. The tube is so stiff that the tire does not go entirely flat, but is supported by the tube as shown. Consequently, there is no danger of the car getting beyond control, it is said. The tube is reinforced with a light fabric to prevent blowouts. Price, 30x3, \$15.25; 34x4, \$22; 37x4½, \$27.25—Compression Inner Tube Co., Columbia Bldg., Louisville, Ky.



OXILUM OUTFIT FOR WELDING

A new outfit for welding, brazing, soldering, decarbonizing and lead burning, which uses a mixture of city gas and oxygen. The lead-burning outfit includes an oxygen regulator, one Oxilum controller, tips, hose, goggles, wrench and instruction sheet. Price \$40; with 3000-lb. tank pressure gage, \$45.

The welding outfit in addition includes a No. 11 combination torch with welding and cutting tips, oxygen hose with cutting valve and fitting, and a supply of welding rods and fluxes for cast iron, aluminum, bronze and copper. Price \$80; with 3000-lb. gage, \$85—Cox Brass Mfg. Co., Albany, N. Y.



EMERGENCY BRAKES FOR FORDS

A contracting brake which is readily installed and is said to be powerful in action and durable. Price \$10—L. A. Leathers Co., Brookville, Pa.

Editorial Observation

More Light

IT is a very noticeable fact that every time a group of dealers or garagemen get together for the ostensible purpose of correcting some of the abuses of the trade, the first thing that comes up for discussion is the old time-worn question of standardizing the price of something; in short of eliminating price-cutting.

This shows, of course, that there is a need of some remedy for the difficulty. But it also shows that, in centering their attention on this one subject, these men are overlooking far more important principles; they are allowing this one question to blind them to all other matters, the most important of which is the spirit of co-operation, of brotherly love, of work in harmony which such an association of interests makes possible.

There is no one factor which is more certain to eliminate the price-cutting bug-a-boo than publicity. The prices of standard, advertised articles are not cut. Why? Because these prices are widely known. Everyone knows what everyone else is getting for them. There is nothing underhand and there can't be.

To attempt to eliminate price-cutting by what appears to some dealers to be the simple expedient of

threatening to throw a member out of an association is folly. It has been tried again and again and it always fails. If any individual member wants to cut, believes that he can make a profit in spite of such cuts, no threat that his fellow members can make will ever influence him to stop. He'll simply keep on cutting and be thrown out. And then other members will have an enemy in truth.

But if all members knew exactly the price of any one article how simple it would be for them to say to this price-cutter: "Look here, Bill, we're all getting \$2 for this item. Aren't you a bit foolish not to get \$2, too?"

It is a law of human nature to get the maximum price—to get as much as the other fellow is getting. Prices will automatically stabilize themselves in the face of widespread publicity.

Instead of trying to force a man to stop cutting by threatening him with all sorts of dire catastrophes—which are not catastrophes, at all, in his eyes—how much easier it is to turn on the searchlight and show him how foolish he is to sacrifice profits that all the other fellows are getting.

This would be real co-operation.

Are You Stocked Up?

A THOUSAND pages of advertising and a million prospective buyers are of no value whatever to the dealer unless he has something to sell them.

Willing buyers may pack the salesroom and wave money at the dealer, but he can't get the money unless he has something to give in exchange for it.

Having the goods ready is going to mean profits to dealers in cars and accessories during the coming weeks. Of course, many car dealers have long had their orders in for cars and can't get them because of the freight car shortage and other reasons. But there are undoubtedly many dealers—especially some of the smaller ones—who have hesitated to place orders for

cars until they could see the orders.

This is a rather short-sighted policy. Any dealer who pretends to be a dealer must know that, barring some terrible calamity, he is going to sell at least two, or five, or ten cars this summer, and if this is true he may be beating himself out of velvety profits if he doesn't prepare by getting cars in stock. Having the car ready for immediate delivery often swings the sale.

And the matter of stock is vital with the accessory dealer and garageman. In a few days a stream of motorists is going to demand all sorts of things of the accessory dealer—who is in the majority of cases the garageman—and the dealer who has the goods ready is

going to reap the profit. The dealer who has to say: "We haven't that" is losing money.

The accessory dealer should study carefully his needs. He should stock the things he knows motorists buy, and then he should get his display machinery in operation and help the motorist buy.

The salesmen of jobbers can help thousands of garagemen by advising them—honestly—as to what to stock and how much. The jobber's salesman who will be an honest counselor of the garageman can build a strong future business for himself. But by no means let there be overstocking of the dealer. Let the salesman and the dealer work together for a good summer business and a big profit.

Another Denver Show

DENVER, March 31—The 6-day motor show that closed March 24 at Mammoth Hall won a splendid success award from the exhibitors in the form of a unanimous vote in favor of a spring or winter show in Denver again next year.

The affair opened with an attendance of about 2500 March 20, and was well patronized all through, at both evening and day programs. The attendance from distant parts of the territory was cut down considerably by a heavy snow-storm, and yet there were dealers and other visitors from far out in the three states—Colorado, Wyoming and New Mexico—comprising this 300,000-square-mile Rocky Mountain territory supplied by Denver distributors.

This late snow means dollar-making moisture for the dry farming sections, although there was already an abundance in the mountains to supply water for irrigated lands, power plants, etc. So the dealers are confident that more people are thinking motor cars, motor trips and motor supplies because of the still better crop outlook, and that this loss in show attendance will be far more than offset by the final influence on sales.

The highest number of retail sales credited directly to the show by any one dealer was 12 cars, with one or two others close to that mark. Several claim a few sales, and some none at all. But the dealers all report an excellent lineup of prospective buyers. Sales that had been pending 3 or 4 months were closed, and a goodly number of new dealers were secured and sent home with demonstrators.

Segregate Used Car Dealers

DENVER, March 31—A proposed ordinance to require a yearly license fee of \$50 for conducting a used car business separate from new car dealing, and \$25 for operating a used car business in connection with selling new cars, has been brought before the Denver city council by the Automobile Trades Association of Colorado.

The object of the new measure is to improve the system of licensing used car dealers under the present law, which compels every dealer handling used cars to pay a \$50 fee, regardless of whether he is running a strictly used car business or merely selling used cars which he takes in on sales of new cars.

The trades body claims that this present tax is unfair, and that the new car dealer should be favored. Association representatives have succeeded in getting the proposed measure reported out of committee and ordered printed.

Colorado Lien Law Fails

DENVER, March 31—The lien law introduced by the Automobile Trades Association of Colorado into the session of the state legislature just closed, failed to pass. The assembly was so crowded that the dealers were unable to get this measure brought out of committee for open discussion in either house.

Letters From MOTOR WORLD Readers

EDITOR Motor World: What can you do to help us, and repairmen generally, to get illustrated price lists of parts for different makes of cars? Some companies, we believe, do not have them, but others do and do not seem willing to send them out.

In our opinion every repairman ought to have these books, as reference to them will enable one to give the car owner better service. They are a great help in making small adjustments and save hours of time when you have to tear things apart to see how they are constructed on the inside, or to find out exactly what the trouble is and what must be done to repair it. The car owner, of course, must pay for this time.

Then think of the trouble to make out repair parts orders without a reliable guide. It sometimes is necessary to rebuild a car from one end to the other and you may need 50 different parts. If you have to guess at about one-third of the order, and the house receiving it guesses further before filling it, you probably will have to return part of the shipment sent you two or three times before you finally get what you want.

All parts are shipped C. O. D. and the

repairman has to put up the money each time. After you have returned a lot of parts which you could not use, and for which you had to pay before they were delivered, you must coax and fight to get your money back, and sometimes you never get it back.

Another discouraging thing is the matter of discount on repair parts. Very few manufacturers allow a discount. Why is this?

Such parts as serial numbers, name plates, model numbers, etc., you are unable to find at all; others are put on so poorly that they are lost. Often we find the name plate a blank, never having been stamped.

There is a lot of room along these lines for improvement which will help to Better Mechanics.—Shirk Auto & Machine Co., Ida Grove, Iowa.

Ogden Trade Organizes

SALT LAKE CITY, March 31—Dealers, gas and oil men, tire and repairmen, of Ogden, Utah, have organized the Ogden Automobile Trades Association. The officers are: L. L. Haines, president; T. S. Browning, first vice-president; J. E. Smith, second vice-president; W. C. Binford, secretary; J. M. Mack, treasurer; Andrew Jost, W. B. Taylor, Walker Cheesman and H. A. Johnson, directors. A similar association is to be organized at once in Provo, the third largest city in the state. Salt Lake has two dealers' organizations—the Intermountain Automobile Trades Association, composed of accessormen and repairmen; and the Intermountain Automobile Distributors' Association, composed of distributors and dealers in motor cars exclusively.

Here's What a Cyclone Left



RECENTLY a cyclone swept over the city of New Castle, Ind., and here is part of the result. The car is an Inter-State and was standing in front of its owner's home several hundred feet away when the cyclone struck. It was rolled over and over and finally came to rest like this. Whereupon the owner righted it, cranked up and drove 20 miles to the Inter-State factory in Muncie to have the dents taken out of the fenders.

The RETAIL NEWS.

EAST

Gulf Refining Co., Louisville, Third and Kentucky Streets, was opened for business yesterday. It is a duplicate of the concern's service stations in Philadelphia, Atlantic City and Pittsburgh. A rest room for women is a feature of the station.

The Rex Garage & Supply Co. of Harrisburg, was recently incorporated at \$15,000, and is planning a big expansion of its business. A repair department will be maintained, an accessory business added and the building will have a capacity of 150 cars.

The Townsend Motor Co., Bridgeton, N. J., will conduct a Chevrolet service station at 20 South Pearl Street. Farm tractors will also be sold. Thomas T. Townsend is president and general manager.

The Maxwell Motor Sales Corp., Philadelphia, has opened a branch at 15 South Fourth Street, Camden, N. J., in charge of William F. Lehman. The new branch will cover the territory around Camden.

The White Co., Philadelphia, has leased the Tourist Garage, Delaware Avenue and Adams Street, Wilmington, for a branch.

The Overland Motor Car Co., Philadelphia, has added a fleet of motorcycles to its service department for quick work.

The Crescent Auto Sales Co., 139 East State Street, Trenton, N. J., has taken as partner, Arthur R. Giles, formerly special representative of the Chevrolet Motor Co., New York. The Crescent Co. is Chevrolet dealer.

James Tinnesey, Philadelphia, is building an addition to his garage at 810-22 North Twenty-second Street, to cost \$9500.

Todd Rubber Co. of New Haven, Conn., Kelly Springfield Tire distributor for state of Connecticut, has just opened a new store in Hartford, 338 Pearl Street, under the name of Kelly Springfield Tire Sales Co.

The R. D. Britton Co., Hartford, Conn., Allen & Velle distributor, has nearly completed alterations of the two-story building at the corner of Allyn and High Streets. The offices have been removed from the first to the second floor and the salesroom has been enlarged. The company also operates an extensive service department.

The Ashwell Service Station, 341 Trumbull Street, Hartford, Conn., has put in a new department for the testing of electrical devices used on motor cars.

J. M. Heiser, York, has opened a repair-shop at the northeast corner of South Court and Boundary Avenues.

David Kiawanaky and William Sillfron, formerly engaged in the newspaper business in Harrisburg, will open a repair and vulcanizing shop at 1717 North Sixth Street, with a full line of accessories.

The Richmond Motor Co., 932-938 Linden Avenue, Baltimore, Md., has just been organized to handle the Harroun. E. C. Tracey is president, Raleigh T. Lilley, vice-president and treasurer, Samuel A. Harris, secretary, and Frank W. Petticord, sales manager.

The Motors Co., Baltimore, Md., Atlas truck distributor has become distributor for the D. E. trucks for the state.

Delcher-Harper, Inc., who formerly sold the D. E. line locally will continue to handle the Southern states. They also distribute the Troy Trailers.

The Hollier Motor Co., 1514-24 North Spring Street, Baltimore, has become the distributor for the Hollier in this territory, and will also do a general garage and accessory business.

The Gilson Sales Co., accessory dealer, Baltimore, has become the distributor for the Armleder truck. E. S. Quarengesser is president, John C. Schultz will have charge of the truck department and F. Wagner, Jr., will look after the tire and accessory department.

The L. & D. Motors, Inc., New York, has been formed to handle the Marion Handley and the Pullman. The officers are: president, Henry Drouet, vice-president and treasurer, David Lichtenstein. James Rohde, formerly connected with the Splittorf company, is in charge of the service department.

The Import & Export Co., 1790 Broadway, New York, has taken the agency for the Pennay.

SOUTH

Puckett's Garage, Fort Gaines, Ga., has installed new equipment, making it one of the most complete and efficient in southern Georgia.

J. L. Couch of Columbus has secured the distribution of the Dort.

The Hardin Motor Co. of Chester, S. C., state distributor for the Chandler, has opened a branch in Columbia, at 823 Main Street, with John V. Turner in charge as local manager.

The Beckwith-Wilson Co. of Tampa, Fla., are now operating one of the most up-to-date filling stations in the state. It is arranged so that cars can drive into the station from Tampa Street and leave via Madison Street, thus eliminating the trouble of turning round or backing out. There is ample capacity for filling four cars at one time.

O'Kelley & Walker, Atlanta, Ga., have opened a service station for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Company.

W. E. Graves of Memphis, Tenn., has awarded a contract for the construction of a garage, 50 x 150 ft.

The Covington, Tenn., Mfg. & Automobile Co. will erect a new garage and repairshop.

Jacksonville, Fla. Three Ford agents are occupying new buildings. The Nece Motor Co. and Harby & Crawford have just completed new homes, while the Turner Motor Car Co. just took possession of its new garage and salesroom.

George W. O'Neal of Harrison, Ark., will build a reinforced concrete and steel garage to cost \$10,000.

Alabama Motors is the name of a new company organized at Birmingham, Ala., with capitalization of \$10,000, to handle cars. F. Merritt is president and treasurer.

The D. W. Young Motor Car Co. of Birmingham, Ala., has been made Chalmers distributor.

The Southern Motors Co., Jacksonville, Fla., has been made Chevrolet distributor and will enlarge its building to take care of the new business.

O'Kelly & Walker, Atlanta, Ga., have opened an accessory store at 45 Auburn Avenue. They will have the agency for the Milburn electric. P. D. O'Kelly, former Milburn dealer, and J. R. Walker an accessory salesman, are the owners. A garage will be opened.

Bryan W. Newkirk, Atlanta Ga., has been made manager of the Atlanta branch of the Lindner Motor Sales Corp., Apperson distributor. He was for three years automobile editor of the *Atlanta Constitution*.

The Capital City Auto Co., Inc., New Orleans, La., has opened a new salesroom and service station at 829 St. Charles Street, costing \$30,000.

The Plageman Motor Sales Co., Richmond, Va., has been appointed Pullman agent. Salesrooms will be located at Allen Avenue and Broad Street.

The White Front Garage, Gallatin, Tex., has installed a vulcanizing plant. Clyde L. Cook, the tire man, has completed a thorough course of training at the Goodyear repair school.

Jo Miller, Nashville, Tenn., agent for the Adder Machine Co., has discontinued that line to sell Dodge cars for the Cumberland Motor Co.

William Pape, Birmingham, Ala., is sales manager for the Detroit Motor Car Co.

Hal Coons, Birmingham, Ala., has been made manager of the tire and accessory department of the Newell Auto Co.

The R. D. Maxwell Co., Birmingham, Ala., has been organized to distribute the Studebaker in Alabama. Until a home can be built the salesrooms will be at Twenty-third and First Avenues.

R. K. Morgan, Richmond, Va., has been appointed manager of the Atlantic Auto and Accessories Co. He formerly was with the Kaejler Motor Co.

W. S. Neville, Richmond, Va., has been made sales manager for White cars and trucks by Smith & Hicks, Inc. He formerly was manager of the G.M.C. line for the Kaehler Motor Co.

The Thomasville Motor Co., Savannah, has moved into new quarters in the Masonic building.

The Foreman-Howard Motor Car Co., Charlotte, N. C., has opened a branch office and salesroom in Columbia, S. C. Temporary quarters have been opened at 1240 Washington Street. The company is Cole distributor for North and South Carolina and for the Reo for the Piedmont section of North Carolina and South Carolina.

Miller & Carpenter, Cherryville, N. C., have been appointed service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

MIDDLE WEST

The Overland Automobile Co., of Peoria, Ill., has moved into new quarters at 1601-09 Main Street.

The Allen Motor Co., Peoria, Ill., has moved into new quarters at 904-906 Main Street. They were formerly located at 631 Main Street. The quarters were formerly occupied by the Crown Garage.

J. Wieting Becker, Peoria, Ill., has gone to Minneapolis, Minn. to engage in the accessory business at 1201 Hennepin Avenue.

The Chesaning Garage Co., Saginaw, Mich., has increased its capital from \$30,000 to \$50,000.

The Port Huron Tire & Repair Co., Port Huron, Mich., has opened a new service branch.

Leonard Sprague, Grand Ledge, Mich., will open a garage.

The S. O. S. Service Co., Columbus, has been organized by J. A. Weston and J. C. Langley to handle the S. O. S. storage batteries and American tires.

Nicholas Ridgely, Springfield, Ill., Liberty distributor, has leased the McKee Building, 416-418 South Sixth Street, and will conduct salesrooms and service station.

Blane Maxwell, Lovington, Ill., Chevrolet, Overland and Mitchell distributor, will open a new garage and salesroom on April 1. The building is now under construction and will be the largest in Lovington.

Henry Armstrong, Bloomington, Ill., has opened a sales agency at 112 South Main Street. He will distribute the Saxon in McLean County.

E. J. Hahn, Geneva, Ill., is constructing an addition to his garage to take care of expanding business.

The Mutual Automobile Supply House, Decatur, Ill., has opened a salesroom at Cerro Gordo and Water Streets, and will carry a complete line of supplies and accessories. The firm will build its own plant during the coming year and will take a sales agency for automobiles. F. J. Walter has been appointed manager.

Constant & Groves, Springfield, Ill., Hupmobile distributor, moved into a new garage and salesroom, corner of Fifth and Edwards Streets.

J. G. Myers, Bloomington, Ill., has opened salesrooms at the corner of Lee and Washington Streets and will distribute the Oakland in the McLean county.

The Malone Motor Co., Galesburg, Ill., has been organized and will shortly be incorporated. Larry J. Malone, for many years an automobile salesman of Peoria, Ill., is the founder. The company will distribute the Chevrolet in Knox and adjacent counties and it is planned to do a general garage business as soon as a suitable building can be found.

The Dashiell Motor Co., Joliet, Ill., Hudson and Dodge distributor, has leased the building at 504 Clinton Street and will move in April 1.

Ward & Reid, Joliet, Ill., will open a garage in the Norton Building on East Tenth Street, April 1, and operate a general repair business and carry supplies and accessories.

Charles Noel, Pontiac, Ill., has purchased the interest of his partner, E. L. Fosdick, in the Illinois Garage, Water and Mill Streets, and will operate the business alone.

W. J. Gibbons & A. W. Fulton, Peoria, Ill., have formed partnership and opened a garage and salesrooms at 115 Depot Street to distribute the Case and handle supplies. The present quarters are only temporary. A new plant will be constructed as soon as a satisfactory site can be found.

Fred Stearns, Mahomet, Ill., has purchased the Busey Garage. He will maintain a salesroom, repairshop, garage, and carry accessories.

The Frankfort (Ill.) Automobile Co. has been incorporated with capital stock of \$5,000 by R. M. Medill, R. A. Mitchell and Ezra Hindman to handle a line of cars and do a repair business.

R. K. Whitney, Springfield, Ill., has opened a supply and accessory store at 521 East Capitol Avenue. He comes from Omaha, Neb.

William J. Gibbons, Peoria, Ill., formerly in the hay and coal business, and A. W. Fulton, formerly a real estate dealer at Minonk, Ill., have taken the Case agency for Peoria and vicinity. They are temporarily located at 115-117 Depot Street and later will have quarters on Main Street.

Wesley Phillips has sold the Southside Garage, Fort Wayne, to Gabriel Springer for \$40,000.

The Dixie Garage Company, South Bend, has been incorporated by Warren Studebaker, James Gillam and Kenneth B. McDonald at \$5,000 to take over the Lincoln Highway Garage.

B. F. Leader & George Ridenhour, Elkhart, have leased from W. S. Ferris the Twentieth Century Garage and will take possession April 1.

The Kilbury Auto Sales Co., Elkhart, of which Arthur Kilbury is the head, will occupy a salesroom at 113-115 East Lexington Avenue, for salesroom and service station to open April 1. The company is Oakland dealer.

Wayne Oil Tank & Pump Co., Fort Wayne, Ind., will erect a machine shop and store, 115 x 214 ft. The steel contract work has already been let.

Geo. E. Waycott, Cedar Springs, Mich., has opened the Central garage.

E. C. Smith, Grand Haven, Mich., will open a new garage.

Yonder & Decker, Manistee, Mich., have dissolved partnership and discontinued the Pike Garage.

C. Noble, Mulliken, Mich., has sold his garage to Schavey Brothers.

J. W. McCormack, Charlotte, Mich., will open a garage and will conduct Studebaker and Maxwell service.

C. W. Fuller, Grand Rapids, Mich., has taken the agency for Jackson.

The Soo Machine & Auto Co., Sault Ste. Marie, Mich., has taken the agency for Case tractors.

L. N. Marsh, Mt. Pleasant, Mich., has taken the agency for the Dodge.

M. E. Potter, Dundee, Mich., will open a new garage.

Roth Brothers, Breckenridge, Mich., will open a new garage and salesroom and take the agency for the Dodge.

The Kissel Kar Co. and the Edwards Motor Car Co., 178-180 Seventh Street, Milwaukee, Kissel and Dodge dealer respectively, have leased about 12,000 square feet of space in an outside building at 711 Chestnut Street, and will use the entire second floor of the main house for a used car department, which has been organized as a new division of the business under the management of Neil J. Downey. The service department has been moved to the new quarters on Chestnut Street and will be in charge of Arthur Hardy as service manager.

F. W. Wussow, 411-415 Prairie Street, Milwaukee, has awarded contracts for remodeling a factory and warehouse at that location into a fireproof garage and repairshop at a cost of \$10,000.

Wilbert Hoesly, Monticello, Wis., has been appointed Lexington dealer.

Ernst Holland, 4515 Elm Street, Milwaukee, will build a one-story brick and concrete garage and repairshop, 60 x 120 ft., to cost about \$12,000 with complete equipment.

Piepenburg & Reichert, Reedsville, Wis., will build a brick and hollow tile garage and service station, 50 x 150 ft., one-story and basement.

J. J. Dougherty, 803 Grand Avenue, Milwaukee, will build a two-story fireproof garage and repairshop, 60 x 123 ft. on Milwaukee Street, near Juneau Avenue.

Thompson & Harriman, 400 Farwell Avenue, Milwaukee, have awarded contracts for a one-story garage and repairshop addition, 55 x 120 ft.

Peter Entringer, St. Cloud, Fond du Lac County, Wis., has sold a half interest in his garage and repairshop business to Peter Braun, Campbellsport, Wis. A new garage to cost \$12,000 is being erected and will be ready about April 15.

E. A. Randall, Beloit, Wis., proprietor of the Broad Street Garage, has appointed Bert H. Allen manager of the mechanical department, which is being enlarged and re-equipped.

A. E. Thorson, Beloit, Wis., Oakland dealer, has taken occupancy of his new fireproof garage and service station at West Grand Avenue and Eighth Street.

George H. Ferry, Stevens Point, Wis., has joined forces with F. F. Kirstling, machine-shop and smithing, under the style of Ferry & Kirstling Auto Co. The new firm will occupy the Kirstling shops and will be Buick dealer for the western half of Portage county.

The Oxford Realty Co., Wells Bldg., Milwaukee, will build a one-story addition, 45 x 60 ft. to its garage at 479-483 Jefferson Street.

Emil Janke, Tomah, Wis., conducting the Tomah Garage, has taken his brother, Theodore, as a partner and the firm will be known as Janke Bros.

H. M. Maly, Saxon, Wis., has been appointed dealer for the Chevrolet, Studebaker and Smith Form-A-Truck and will establish a garage and repairshop.

The Service Auto Co., Clintonville, Wis., Ford dealer, is now under the general management of I. T. Spurgeon, Shiocton, Wis., who succeeds Donald C. Ramm who resigned.

The Meill-Blumberg Auto Co., New Holstein, Wis., Ford dealer, has moved into its new brick, steel and concrete garage and service station.

June F. Price, Dousman, Wis., has disposed of his garage and business to Ervin Miller, who intends to build a new fireproof shop.

F. A. Whiting, Berlin, Wis., Buick dealer, held a formal opening of his new garage and service station on March 21, 22 and 23. A special display of new Buicks, seven in number, was made for this purpose.

The Apperson Automobile Co., Kokomo, Ind., has leased the building at 1914-1916 Young Street, Dallas, Tex., and has opened a distributing house there. C. B. Jackson has been appointed Texas distributor.

SOUTHWEST

The Mack Motor Truck Co., Kansas City, has leased the first floor at 1416-18 Main Street.

The Beggs Wagon Co., Kansas City, has been appointed distributor for Gram-Bernstein trucks and has moved its offices and salesrooms to 1713-15 McGee Street.

George W. Huselton and Howard E. Huselton, Kansas City, have leased the Keystone Garage at Thirteenth and Oak Sts.

Banks & Schroll, 3005 Strong Avenue, Kansas City, Kan., recently lost \$1,500 by fire when their partly finished garage burned.

The Neustadt Auto & Supply Co., St. Louis, has been sold by E. Epperson to the Rolwing & Mylet Investment Co., which plans to continue the business under the same name, that of the founder. Epperson will retire from the accessory business.

The Miller Tire Service Co., St. Louis, has taken over the retail sales of Miller tires in that city. The company has two plants, 277 De Balivre Avenue and 3567 Lindell Boulevard.

The Frye Motor Car Co., St. Louis, has leased a building at 3900 Washington Avenue for a used car salesroom. A. W. Ruth will be in charge.

The United Sales Co., of St. Louis, on March 1 ceased to supply the local trade with United States tires. These are now being supplied to dealers direct by the manufacturing company.

The Arkansas Tractor & Supply Co., Little Rock, Ark., has been named agent for the Indiana trucks.

R. W. Turner, St. Louis, has been appointed sales manager of the Harry Newman-Johnson Co., distributor of the Hal car.

C. A. Aldrich, St. Louis, recently with a truck-making company, has been named sales manager of the Ameston Motor Sales Co. and takes with him D. H. Leitch and Armand H. Levy, former fellow salesmen.

The Overland Automobile Co., St. Louis, has moved into its new building at Twenty-third and Locust Streets, recently used for the St. Louis Show.

The Willard Storage Battery Co., of Dallas, Tex., has contracted from a new building, adjoining its present building, 2022 Jackson Street, to cost \$12,000.

The Mathis Garage, Denison, Tex., was destroyed by fire last week at a loss of \$20,000.

L. A. Goldstein and Simon Segal, Dallas, have opened a tire service station at Commerce and Prather Streets. They will install a \$25,000 stock of tires and accessories.

The White Motor Car Co., Dallas, has moved into its new home at Ervay and Lear Streets, which was especially designed for the company.

The Goodyear Tire & Rubber Co., Dallas, will move next week into its new building, 1510-12 Young Street.

Gray, Reardon & Newlin, Dallas, Pierce-Arrow and Chevrolet distributor, have leased new quarters at 1008 Elm Street. The company is also building an accessory and mechanical building at Caruth and Lamar Streets.

The Federal Motor Co., Dallas, Premier distributor for Texas, has leased a building at 1918 Commerce Street.

Republic Tire Co., Dallas, has leased an additional building on Commerce Street.

The Wichita Falls Truck Co., Dallas, is erecting a new building on Young Street for headquarters.

The Gray Rubber Co., Dallas, Hood and Puritan tire dealer, has leased for two years the two-story building at 1926 Main Street.

The Central Automobile Storage Co., Dallas, has been organized by Judge C. M. Cockrell, F. M. Gray, R. R. Gilbert and J. D. Gillespie. The company will occupy a building at 1019 Elm Street, where they will store and repair automobiles.

The Randal Adams Automobile Co., Dallas, Packard distributor for Texas, is moving this week into its new home at 2021-2023 Commerce Street.

The Lamberth Automobile Co., one of the six Dallas Ford distributing plants, has contracted for a new building 100 x 100 ft., at Main Street and Washington Ave., to cost \$20,000.

Firestone Tire & Rubber Co. is planning a new five-story building to be erected in Dallas, Tex., to cost \$100,000.

G. P. Guthrie, Waco, Tex., is building a garage.

The Brown Automobile Co., Waco, Tex., has erected a new home at 905-7 Austin Street.

Jones & Norrell, Weatherford, Tex., have purchased the Weatherford Auto Co.'s business on Spring Street.

Clyde Grand & Lucius Anderson, Chandler, Okla., Ford dealers, are building a Dallas to cost \$100,000.

J. D. Vanheezzer, Guthrie, Okla., is building a two-story garage, 75 x 140 ft.

The Crutcher Motor Co., McAlester, Okla., is erecting a \$50,000 steel and concrete garage. The first floor will be used for salesrooms, accessory stock-room and wash racks, and the second floor for vulcanizing and storage battery repairshop.

Elmore Tallafarro, Wynnwood, Okla., has purchased an interest in the Elmore Garage and with W. L. Johnson is having a new building erected to take care of their garage business.

Tewery Brothers, Crockett, Tex., are erecting a garage.

Conner Livery Stable, Trenton, Mo., is being remodeled into a garage.

A. D. Walling, Malene, Tex., lost his garage by fire. It was valued at \$5,000 and carried insurance of \$3,500.

Conche Motor Co., San Angelo, Tex., lost its automobile repairshop by fire, valued at \$14,500. Another building is being erected.

Isaac Shockey, James Garvie, H. W. Rohrer, S. Zook and Frank Geoffrey, Abilene, Kan., are forming an automobile company and will occupy the new building erected by Shockey.

L. H. Tolliver, Abilene, Kan., is building a concrete and brick addition to his garage and machine shop, to be 20 x 70 ft.

Dean & Whightall, Altoona, Kan., have completed the brick addition to their garage.

Joe Trembley, Arlington, Kan., has leased the Eaton building, which he is remodeling for his automobile and implement business.

The Kansas Lumber Co., Belpre, Kan., is building a 36 x 40-ft. addition to garage.

Franklin Baker, Concordia, Kan., is building a garage for S. H. Knapp, Ford dealer. J. M. Shockley, Linn, Mo., has rented the Buschman Garage.

The Neosho Auto Co., Neosho, Mo., will enlarge its garage.

F. C. Thompson & John T. Wrinke, St. Joseph, are building a brick garage.

Gray Brothers, St. Joseph, are opening the Quality Tire Co.

Dick Houston, St. Joseph, has purchased a garage.

John Bichlemier, Everest, Kan., bought the garage of King & Devilbiss.

G. A. Staves & Sons, El Dorado, Kan., are to erect a garage.

Ed. Schmidt, Ellinwood, Kan., will open an automobile supply house.

The Chestnut Tire & Battery Co., Fredonia, Kan., has been formed by J. H. Chestnut of this city and R. M. Sheefelt of Kansas City to conduct a battery and tire service station.

W. D. Brooks, Greenville, Mo., will open an automobile repairshop.

Robert Stalcup & C. O. Frazey, Holton, Kan., are building a garage.

Miller's Garage, Overbrook, Kan., is to be enlarged.

C. S. Baylor, Paola, Kan., sold his garage to C. W. Platt.

John F. Scohill & Co., Kansas City, Kan., is building a garage.

Howard Evens & J. Scudder, Larned, Kan., who have been conducting an automobile repairshop, have dissolved partnership.

Larned Auto Supply & Tire Co., Larned, Kan., burned with a \$10,000 loss.

T. F. Witham, Montrose, Kan., will erect a garage.

J. A. Tudor, Salisbury, Mo., has bought the garage of R. H. Browning.

I. E. Poer, Argonia, Kan., has sold his garage to H. G. Warwick.

John Dall, Argonia, Kan., is erecting a brick garage, 50 x 65 ft.

E. E. McHugh, Bucklin, Kan., is erecting a garage.

A. A. Pilkington, Burrton, Kan., has bought the Burrton Garage from Clem Beckham.

W. C. Bogan, Dodge City, Kan., has severed connections with Bogan & Sons Motor Company.

H. W. Voorhies, Dodge City, has established an auto top factory.

E. C. Radcliff, Dexter, Kan., is building a garage, 50 x 100 ft.

Ellsberry & Yingling, El Dorado, Kan., are opening an automobile company.

Metzger Bros., Ozawie, Kan., are erecting a garage.

Cady & Ross, Parker, Kan., have opened a garage.

Arnold Motor Co., Salina, Kan., was recently formed with a capital of \$20,000 by M. L. Arnold, Wichita; O. T. Shelton, Salina, and R. E. Arnold, Wichita.

Emerson Auto Co., Salina, Kan., has opened with O. A. Thiele in charge.

Roy Goodwin, Toronto, Kan., is erecting a garage.

Lockard & Dickerson, Toronto, Kan., will open a garage.

D. N. Biddinger, Wamy, Kan., will erect a garage and sell automobiles.

J. L. C. Woods, Wamego, Kan., will open a shop for tire repairing and will handle accessories and tires.

The Anti-Automobile Thief Assn., Wichita, Kan., will open a garage and repairshop.

Larson & Jacobson, Blair, Neb., will erect a garage.

Carhart Automobile Co., Oklahoma City, Okla., are erecting a \$30,000 garage.

Fred Arices, California, Mo., Chevrolet dealer, will open a garage.

Dennis Smart, Carrollton, Mo., Buick dealer, has leased the Minnis-Arnold Motor Sales Co.'s garage. He will handle supplies and do repair work.

J. M. Ozler, Temple, Tex., has opened a garage.

W. J. Lashaw, Columbia, Mo., has dissolved partnership with W. F. Smith and is no longer connected with the Columbia Auto & Carriage Painting Company.

The Nodaway Co., Clearmont, Mo., have bought the Bodle Garage.

The Lead Bolt Motor Co., Desloge, Mo., has been incorporated by Edward A. Rozler, Martin L. Clardy, Carlisle E. Rozler, R. Elmer Welsh to do a general automobile business.

L. C. Flemming, Fulton, Mo., has bought the vulcanizing and tire repairshop of Hugh R. Cawthon.

O. C. Swinney, Haler, Mo., is enlarging his garage.

George Arnold, Kansas City, Mo., has opened a garage at Thirteenth and Oak Streets.

J. E. McKinster, Fowler, Kan., has bought the North Garage.

Mr. Cone, Garden City, Kan., who recently purchased the Sam Craig shop, will put in a new cement building for his vulcanizing equipment.

W. A. Huested, Wellington, Kan., will open an automobile supply business.

Jess O. Spray, Silvia, Kan., has opened a service station.

Cap Miller, Sabetha, Kan., has opened a garage.

Robert Fuller, Stafford, Kan., has sold his garage to Mr. McCullough.

United States Tire Co. has established a branch in Salina, Kan.

The Maxwell Bros. Auto Salvage Co., St. Louis, have leased the building directly opposite.

J. M. Grier, Warrensburg, Mo., is the new owner of the McLevey Garage.

H. H. Willenbrink, Washington, Mo., Ford dealer, will erect a modern garage 60 x 120 ft. to cost \$10,000.

The Del-Home Light Co., St. Louis, distributor of Delco products, has leased display rooms at Lindell Plaza and Olive Street, in The Row.

The George F. Smith Contractors' Equipment Co., St. Louis, has taken the agency for Standard trucks.

The Strauss Saddlery Co., St. Louis, has been named distributor for Corning Conaphore lens.

The Paige Co. of Arkansas, Little Rock, Ark., has taken salesrooms at Fourth and Center Streets.

The Wagner Electric Mfg. Co., St. Louis, has opened a service station for starting and lighting systems made by them at 2017 Locust Street.

The Hudson-Phillips Motor Car Co., St. Louis, has been appointed Harroun distributor. The firm previously handled only the Hudson.

Haynes Automobile Co., Dallas, Tex., has leased the building at 2012 Commerce Street.

The Quick Tire Service Co., United States Tire distributor, has opened up a branch house at Waco, Tex. A. Hall of Fort Worth has been made manager.

The Clifton George Co., tire and accessory dealer, Dallas, now occupies the new home at Harwood and Bryan Streets.

Officers of Fort Dodge Automobile Dealers Association

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E. C. Dodson, Dallas, Texas, distributor for Republic trucks and Troy trailers, has appointed the following agents: Bryan Auto Co., San Angelo; Duggan Brown Overland Co., Abilene; Perry Willis Auto Co., Waco, and Frank Doring, Temple.

NORTHWEST

E. W. Blakeslee, Nebraska City, Neb., has bought the J. H. Markel Garage.

Peterson & Kimbel, Oshkosh, Neb., have bought the City Garage.

Gus Kasell, Stanton, Ia., has bought Axel Edstrom's interest in the Stanton Garage.

H. J. Paul, Stuart, Ia., has bought the interest of his partner, Monte Estes, in the garage business.

Willard James, Sidney, Ia., has bought the Larson Garage.

The Baker & Graham Garage, Buffalo, Wyo., has been completed and opened.

The North Dakota Tractor Co., Fargo, N. D., has been formed to handle the Staudt Mak-A-Tractor for the State by T. J. Anders, Fargo, and D. E. Frost and J. N. Welsby. Offices have been opened in the Union Transfer Building.

The Fisk Rubber Co., St. Paul, has moved its wholesale distributing plant from 1421 Hennepin Avenue, Minneapolis, to the basement of the new Willys-Overland plant in the Midway. The St. Paul and Minneapolis retail establishments will remain where they are. Seventeen branches are supplied from the St. Paul warehouse. A lease was made for five years.

The Willys-Overland branch, St. Paul, has organized a garden club among its employees. The company has 15½ acres of land, of which only three acres are in use. The plot has been divided into 64 lots of 36 x 40 ft. each. This number will be increased, as the 64 have been taken already. It is part of the city garden movement.

The Splittorf Service & Sales Co., Minneapolis, will open at 816 Hennepin Avenue on April 1 for sale of Splittorf products and will also conduct a service station.

Wilson Barber Auto Co., Huron, S. D., will build a two-story brick garage.

Richard Welch, Litchfield, Minn., will rebuild his new garage, recently wrecked by the snowstorm.

William Hingum, Nashua, Mont., will erect a garage.

Carl Helleckson, Wanamingo, Minn., will open a repairshop.

Murphy-Palmer Auto Co., Fargo, N. D., has opened a large new showroom for Chalmers. Maxwell and Detroit Electric at 63 Fifth Street N.

MOUNTAIN

The Star Service Co., Denver, is a new garage business opened at 24 West Eighth Avenue by E. D. Manny and A. J. Short.

The S. B. I. Motor Sales Co., Denver, a new \$25,000 firm incorporated by Frank E. Simonton, Thomas T. Barnard and James B. Irving, has opened a Hupmobile distributing agency for Colorado, New Mexico and part of Wyoming and Utah at 1260 Broadway.

W. B. Sands, Gering, Neb., Chandler dealer, is having a \$10,000 garage built by William Lamb, lessor.

The Auto Lamp Repair Co., Denver, is a new concern for repairing lamps and windshields at 846 Broadway.

W. R. Woods, Denver, formerly president of the Chamberlain-Woods Motor Sales Co., is now Hupmobile salesman for the S. B. I. Motor Sales Co., a new distributing firm.

The Mid-West Auto Sales Co., 1512 Broadway, Denver, Ross distributor for Colorado, Wyoming and New Mexico, has added the Jackson for the same territory.

The All-Year Motor Co., Denver, Kissel distributor for Colorado, Wyoming and New Mexico, with headquarters at 1517 Cheyenne Place, has added the Maxfer truck attachment for the same territory.

The Exchange Auto Co., Denver, Chevrolet distributor for Colorado, Wyoming and New Mexico, has added the Grant distributing agency for the same territory.

I. B. Humphreys, Denver, has secured the Fiat distributing agency for Colorado, Wyoming, New Mexico and Utah, and opened a salesroom at 221 Sixteenth Street. He has given the Colorado selling agency to the Moock Motor Sales Co., at the same address.

The Vim Truck Sales Co., Denver, Vim truck distributor for Colorado, has moved from 801 Broadway to 1646 Broadway.

The Earl Franklin Used Car Co., Denver, is a new firm at 1544-1546 Court Place. All cars sold will carry a 30-day written guarantee against defective parts.

The Bonner Tube Sales Co., Denver, has opened a Bonner tube distributing agency for Colorado at 1673 Broadway. H. B. Wolf is manager.

COAST

R. F. Vernier and L. O. Wiltz, San Francisco, have purchased the New City Hall Garage at 218 McAllester Street.

P. J. Kelly, San Francisco, has erected a two-story fireproof, cement and concrete garage at Van Ness Avenue and Turk Street.

The American Auto Painting Co., San Francisco, has leased the upper floor of the new Valley Garage. William Prahll is manager.

Valentine Britton, San Francisco, operating under the trade name of West Coast Tire Co., has opened tire salesrooms at 699 Van Ness Avenue, with a stock of factory seconds of all tires and tubes of standard makes.

The Saxon Sales Co. of Richmond, Cal., has opened salesrooms at 1928 Macdonald Avenue.

Bertheisen's Garage has been opened on San Pablo Avenue, Berkeley, Cal., and will be the connecting service station between Oakland and Richmond.

R. J. Howard, San Francisco, has opened a general automobile repairshop at 4128 Geary Street.

The J. & D. Auto Repairshop, San Francisco, is a new concern on upper Geary Street. The shop has been opened at 4025 Geary Street.

J. King, San Francisco, conducting the Richmond Vulcanizing Works, has opened a general tire shop at 3632 Geary Street.

W. H. Winn, formerly connected with the Cole Agency has taken charge of the service department of the Jackson Garage, San Francisco.

A. Devoto has been appointed manager of the parts department of the Dubroy Motor Car Co., San Francisco.

The Montgomery Auto Sales Co., 150 Columbus Avenue, San Francisco, has purchased the Montgomery Garage and will handle the Chevrolet and automobile supplies.

George M. Troutt, wholesale distributor of the Hollier for California has leased salesrooms at 1710 Broadway, Oakland, Cal.



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A Department of Better Mechanics

No. 17

Magnet Replacement on the Ford Magneto

INDICATIONS OF WEAK MAGNETS

1—Dim lights.

2—Frequent backfires, or explosions in the muffler when running—possibly blowing the muffler up.

The magneto is often blamed for trouble that lies elsewhere in the electrical system. A weak current will often be caused by dirt or waste collecting beneath the contact spring on the crankcase cover. To clean, remove the three screws holding the binding post, remove the post and spring, and clean.

Check up the wiring for short circuits or grounds.

To reach the magnets it is necessary to remove the engine from the car. The common method of doing this is to remove radiator, dash and steering gear and lifting the engine out complete. By

the method herein outlined the base of the engine is left in the chassis and the dash and steering gear are left undisturbed. Two experienced men can readily remove an engine and place it on the bench in 15 min. by this method.

TO REMOVE ENGINE

1—Drain radiator.

2—Remove four bolts at universal joint.

3—Remove rear spring shackles and pull rear axle back. (The rear of the car must first be blocked up.)

4—Disconnect radiator stay bolt.

5—Remove the two bolts holding the radiator to the frame and remove the radiator.

6—Unsnap commutator and place it to one side.

7—Remove spark plug wires.

8—Shut off the gasoline and remove the feed line from the carbureter.

9—Disconnect the exhaust manifold from the exhaust pipe and remove both intake and exhaust manifolds from the engine.

10—Remove fanshaft bracket and timing gear case.

11—Remove the two bolts holding the pans to each side of the base and knock the pans down out of the way.

12—Remove the base bolts.

13—Remove the transmission case after loosening the reverse, low and brake transmission bands.

14—Lift the engine from the frame and place it on the stand shown in Fig. 1.

The lifting may be done with a hoist. It is quicker and easier, however, if

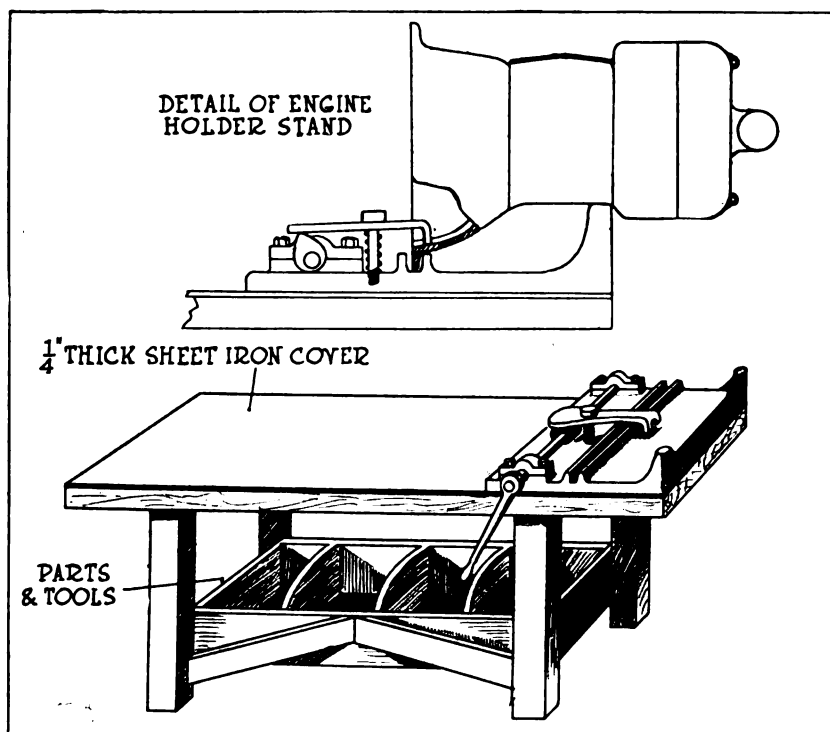


Fig. 1—The engine holder is cast iron. The cylinders are supported at each end on the end rests and a cam throws a notched finger down over central flange in the inside of the crankcase holding the engine securely

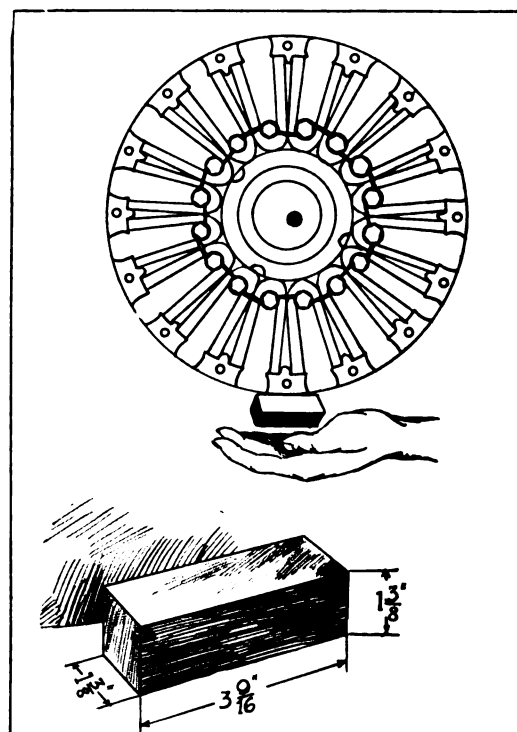


Fig. 2—The steel block should just hang in place. The block should be the weight of the Ford camshaft gear

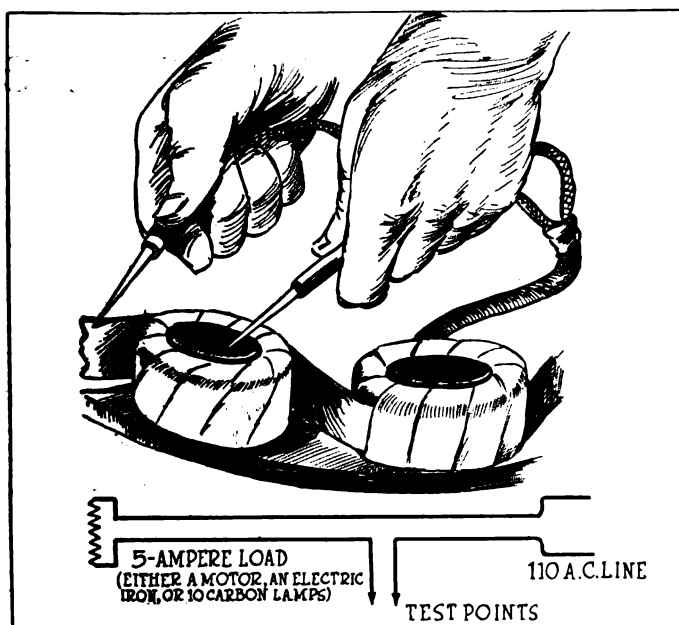


Fig. 3—Testing the coils with a 110 volt line circuit

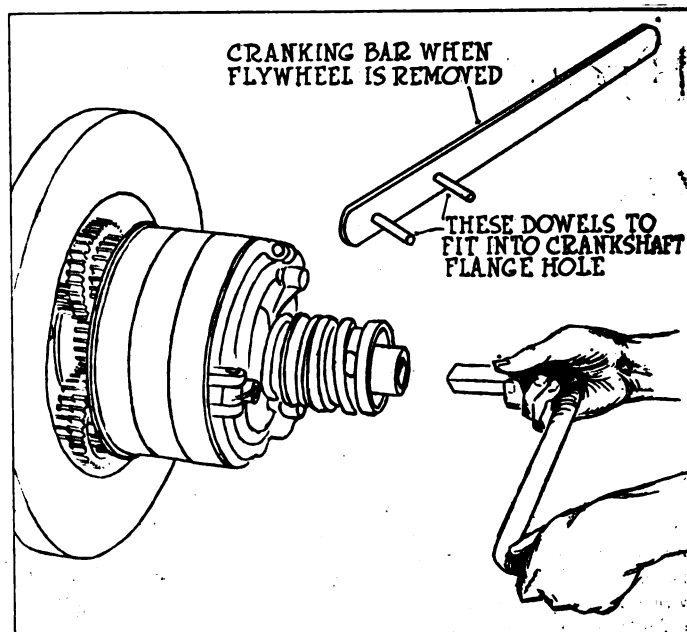


Fig. 4—Cranking the engine with the transmission in place

three men take a hold of it and lift it out by hand. One should straddle the engine at the rear and the other two should be at each side at the front.

TEARING DOWN THE ENGINE

Fig. 1 shows a stand used in engine work, and one should be made if there is any amount of Ford work done in the shop. It is hard wood, bolted together, about 30 in. high, 6 ft. long, and its width is the length of a Ford cylinder block. The holder is cast iron, and the cylinder block is clamped into it by a cam operated clamp, in the manner shown in the small sketch. By this arrangement all parts are accessible and the engine is securely held.

1—Clamp the engine in the stand, as shown in Fig. 1.

2—Test the magnets on the flywheel, as shown in Fig. 2. The block of steel should just hang by a corner. The weight of this test block happens to be the same as that of the Ford camshaft gear. Failure to hold indicates weak magnets.

3—Remove the bolts holding the flywheel and transmission to the crankshaft.

4—Remove the flywheel, magnet and transmission unit, placing it face down on the bench.

5—If trouble is suspected in the magneto coils, these may be tested, as shown in Fig. 3. The two test points are connected into a 110-volt alternating current line, carrying a 5-ampere load, such as would be given by a small motor, a flat iron or 10 carbon lamps. The main ground of the coils is disconnected and each coil tested for shorts, grounds or open circuit.

6—Chisel the heads from the ends of the brass magnet retaining screws at the rear of the flywheel.

7—Turn the flywheel-transmission assembly over and set it upright in a square box placed on the bench.

8—Clip the wires holding the central magnet-retaining bolts.

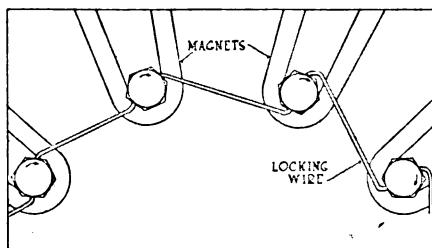


Fig. 5—Method of locking bolts by running a wire through the heads

9—Using a bit brace screwdriver, unscrew the outside magnet screws.

10—Using a bit brace socket wrench, unscrew the central retaining bolts.

11—Save and clean all parts except the magnets and the brass screws.

BUILDING UP THE MAGNETS

1—Place the new magnets on the flywheel in the same order that they were in the box that they were shipped from the factory—that is, so that the legs that do not attract each other are together.

2—Catch all the central retaining bolts in place, but do not tighten.

3—Slip the outside spools under the magnet ends.

4—Drop the magnet clamps onto the magnet ends and catch the brass screws into their threads.

5—Using a brace screwdriver, bring all of the screws down snug.

6—Pinch the ends of the magnets in with a pair of pliers until the sides of the magnets rest against the spacer on the clamps.

7—Tighten the outside brass screws.

8—Tighten the central retaining bolts.

9—Using stovepipe or brass wire, lock the central bolts in position. The wire should be inserted as shown in Fig 5, as this creates a tendency to tighten instead of loosen the bolts.

10—Knock the four corners of each magnet clamp down over the magnets, so that they cannot interfere with the coils later.

11—Turn the assembly over and head the brass screws at the rear of the flywheel.

Before assembly the engine should be inspected for loose cranks or wear and should be cleaned.

ASSEMBLING THE MAGNETO

1—Replace the flywheel-transmission assembly onto the crankshaft flange and secure it with two opposite flange bolts. Draw these bolts up snug.

2—Using the crank, as shown in Fig. 4, turn the flywheel and note whether the magnets interfere with the coils.

3—Replace the two other flange bolts.

4—Tighten all the flange bolts. A short piece of round stock, wedged through one of the holes in the coil flange and caught behind the magnets, holds the crank so that the bolts may be drawn tight.

5—Again using the crank as shown in Fig. 4 crank the engine quite fast. While cranking, short circuit the magneto. (Continued on page 37.)

Previous Articles

Subject	No.	Date
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor	12	Feb. 28
Paige—Oil level adjustments	13	Mar. 7
All Cars—Removing Compression Knock	14	Mar. 14
All Cars—Rebuilding the Storage Battery	15	Mar. 21
Cadillac—Rebuilding the Radiator	16	Mar. 28

Front-wheel Drive Pullmore is Accessible

Engine, Clutch and Gearset Instantly Exposed

To Sell for \$3400

GREAT accessibility of every part of the powerplant, front-wheel drive and a detachable front unit consisting of powerplant, front wheels and cab, are the three outstanding features of the 3-ton Pull-More truck made by the Pull-More Motor Truck Co., Pittsburgh, with a factory in New Castle, Pa.

Brief specifications of the vehicle, which has been in course of development for the past 14 years by H. H. Marker, the chief engineer of the concern, are as follows:

Capacity, pounds	6,000
Price, tentative	\$3,400†
Wheelbase, in.	153
Tires, front	36 x 6
Tires, rear	36 x 6
Bore	4½
Stroke	6
N. A. C. C. hp.	32.40
Speed, r.p.m.	1050
Speed, m.p.h.	12
Gear ratio in high gear	9.9 to 1
Final drive	Double chain*

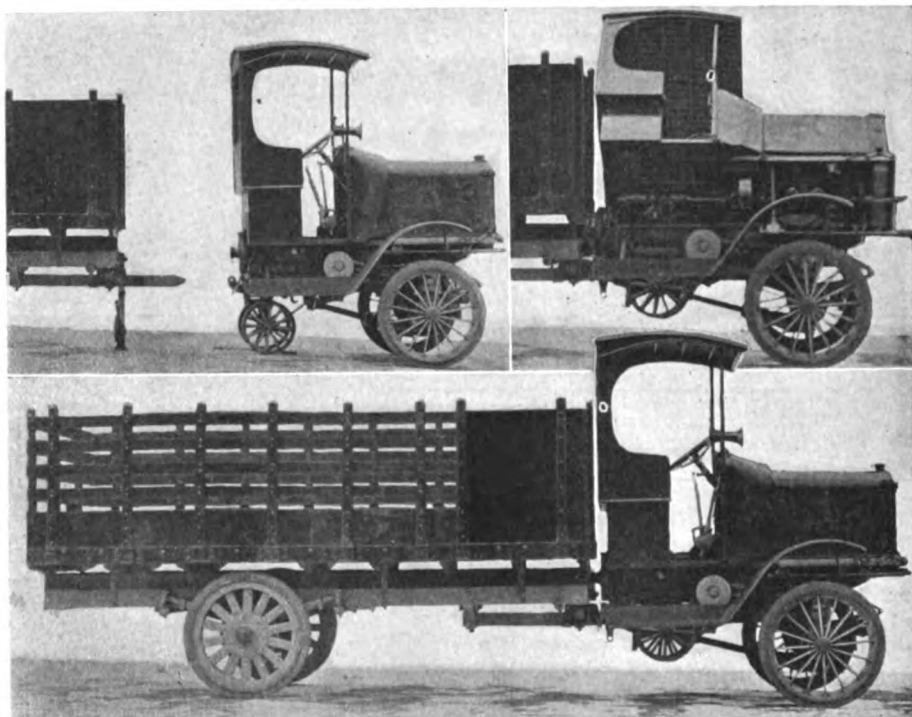
†Chassis without uncoupling feature. *To the front wheels.

The accessibility of the powerplant is secured by mounting the engine, clutch and gearset in the upper half of a hinged casting which fits into a barrel-shaped casing corresponding to the lower half of the crankcase of an ordinary motor except that it incloses all the driving mechanism between the engine and the jackshaft, including the differential.

Hinged Cab Turned Up

When it is desired to get at any part of the engine, clutch, gearset or differential, the upper half of the case is revolved upward about its side hinges by a screw jack operated by a crank applied on the end of a short turning shaft extended forward to the front of the radiator. This upper half of the casing is carried on a framework which supports the cab, radiator and hood, this entire assembly turning over as the joint between the upper and lower halves of the casing is opened to expose the interior members. The entire operation can be done in a few minutes, the starting crank being used as the handle to operate the elevating screw.

The turning of the cab is made possible without making any mechanical disconnections by mounting the steering column on a universal joint and similarly arranged links in the foot brake on the driveshaft outside of the casing at the rear and the hand brakes on the rear wheels.



The illustrations above show the Pullmore power unit detached from the load unit and the method of exposing the power plant. Below is the complete truck

The engine is a stock Buda except for the crankcase. It has its cylinders cast in block with the valves at the right. It is cooled by means of a centrifugal pump circulating the water from a vertical finned-tube radiator with a cast case. The engine is fed by gravity from a tank carried in the dash. The engine speed is controlled by a Pierce governor. Ignition is by a single system and electric starting and lighting may be had at an extra charge of between \$150 and \$175.

Method of Drive

The drive is taken through a Borg & Beck clutch to a three-speed selective Warner gearset. The driveshaft, extended aft of the gearset, is provided with a spur gear on its rear end. This meshes with another similar gear mounted on a parallel shaft directly below which extends forward to a jackshaft at a point just behind the clutch. The jackshaft is carried in the lower half of the casing, the drive being taken by outside chains and sprockets to each of the steering knuckles.

Lubrication of the engine is by the splash-pressure system, the same oil being used to lubricate all the members in the lower half of the crankcase, including the gearset, spur gears, differential and jackshaft.

The lower half of the crankcase is in turn supported in a similarly shaped casting and yoke carried in two bearings on the front and one at the rear, the

front ones being mounted at the centers of the upper members of elliptic springs on both sides.

Each wheel is carried on a stub driving shaft and the drive taken in much the same manner as in the Panhard four-wheel-driven tractor. A hollow steering knuckle housing is employed in which there is a vertical idler shaft with bevel gears at top and bottom, that at the top meshing with a similar gear on a short horizontal jackshaft with the chain sprocket at its inner end, and that at the bottom with a bevel gear on the stub shaft.

Releasing Power Unit

The front end of the truck is uncoupled from the rear end through the employment of a tapered telescoping reach with the female member attached to the barrel-shaped casting below the engine crankcase and the male member to the underside of the frame carrying the body and rear wheels. The pulling strain between the two units of the vehicle is transmitted from the front end of the reach to the front axle by means of a spring drawbar with a yoked end pivoted to flanges on the axle.

This uncoupling feature of the truck is intended to enable unproductive loading and unloading time to be eliminated if more than one load unit is used. The power unit can move from point to point under its own power by means of two small hinged auxiliary wheels which may

be swung down to the ground as a support for the rear end.

It is not necessary to disconnect the brake rod system for the hand brakes on the rear wheels when the two halves of the vehicle are uncoupled. This is accomplished automatically by the use of two rubbing shoes and levers in the line directly aft of the rear end of the cab. When the two parts are joined the two shoes are in contact so that the operation of the hand brake lever sets the brakes as usual.

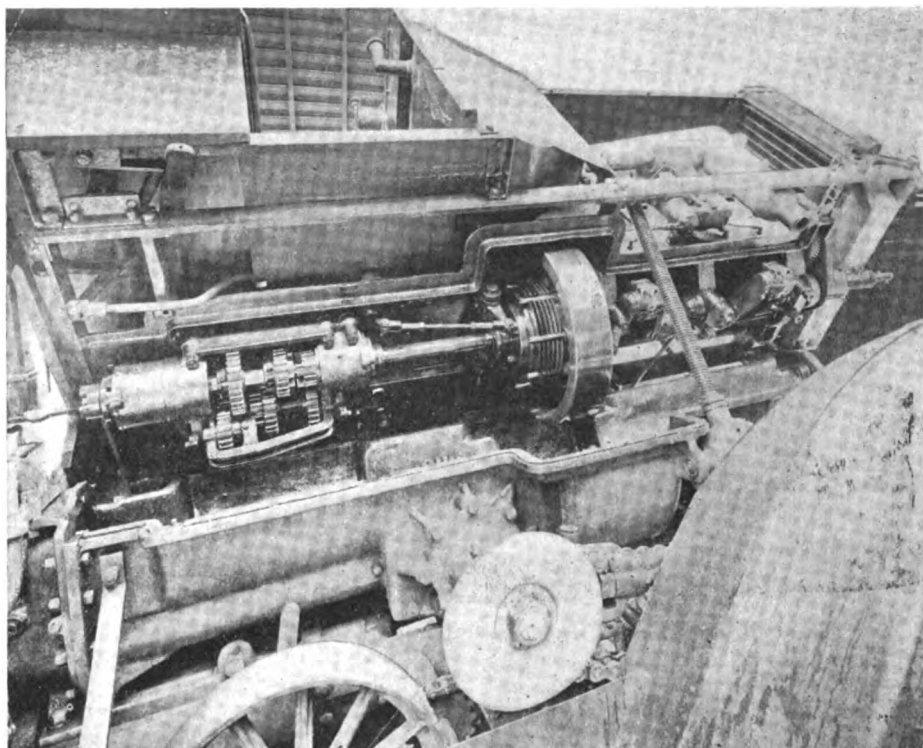
Special Load Units

As standard equipment, the load unit consists of a dead axle, springs and body frame of conventional type, although the absence of any driving mechanism will enable the Pull-More company to offer load units with platforms as low as 18 inches as special equipment.

About 15 per cent of the capacity load is carried on the front wheels, this serving to distribute the total load equally between front and rear wheels. These are of cast steel with outwardly dished solid spokes. Left steer and center control are employed.

Mahin Becomes Rankin

CHICAGO, April 2—The name of the Mahin Advertising Co. has been changed to Wm. M. Rankin Co.



This shows how the Pullmore power plant is fully exposed by tilting the hinged cab which carries with it the upper half of the gearset, clutch and crankcase castings.

A Department of Better Mechanics

(Continued from page 35)

neto contact point with the cylinder, using a screwdriver. A fat blue spark shows the magneto to be O. K.

6—The distance between the magnets and the coil spools should be $1/32$ in. A putty knife may be used as a gage for testing this distance. It may be found necessary to shim up the coil-supporting flange.

7—Place the locking wires in the crankshaft flange bolts.

REPLACING THE ENGINE

Before replacing the engine in the base the base should be thoroughly cleaned. The rivets holding the supports to the base should be tested to see that they are tight. All bolts should be inspected.

1—Place the standard Ford felt packing on each side of the engine base, setting it in heavy oil.

2—Lift the engine up and set it in place. Be careful not to slide it around any more than necessary. Three men can do this easily.

3—Line up the holes in the base with a prick punch.

4—Replace the front gear cover.

5—Drive all the base bolts through their holes, from the bottom up, and catch the nuts onto the threads. Two

men, one with a speed wrench on the nuts and the other holding the bolts, can quickly fasten the engine to the base.

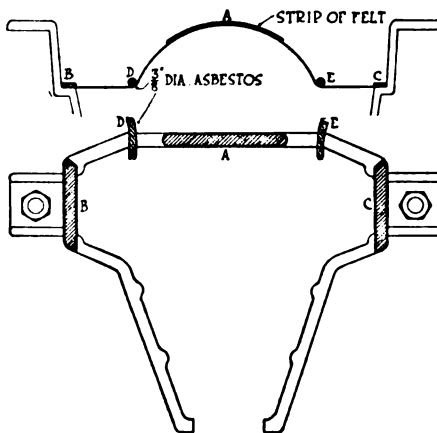


Fig. 6—Method of packing all joints to prevent leakage of oil

Motor World Used Car Price Record giving resale prices of used cars will appear in the Summer Merchandising Number, April 25. Watch for it!

6—Slide the transmission bands in place.

7—Bring the lugs all together at the top and wire them together tightly with a single strand of stovepipe wire.

8—Place short lengths of felt gasket at A, B and C, as shown in Fig. 6. Place $3/8$ -in. asbestos wicking and grease in the corners at D and E.

9—Then place the standard Ford felt transmission gasket in place. The double thickness felt and the asbestos wicking stop up the points that tend to leak.

10—Slide the transmission housing in place. Using a screwdriver, pry the bands into place.

11—Knock the housing down flush and tighten the two rear retaining bolts.

12—Using a thin socket, or check nut wrench, tighten the transmission bands.

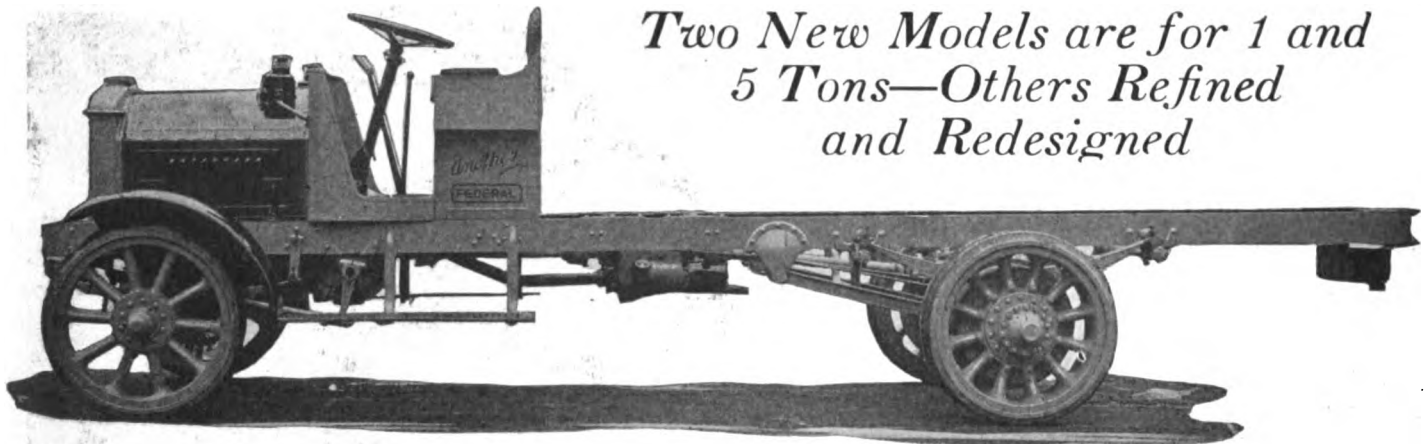
13—Replace the balance of the housing bolts and bring them up snug.

14—Slide the rear axle and drive shaft back into place and secure it there.

15—Assemble the engine fittings, such as fan, commutator, wiring and manifolds.

16—Replace the radiator assembly, hood and floor boards.

Five Models in Federal Truck Line



Federal 3 1/2-ton chassis, showing substantial radius rod construction. Note the long overhang of the frame at the rear

GREATER range of capacity is embodied in the Federal line by the addition of new 1- and 5-ton models. Previously the Federal has always been an assembled product, employing standard components throughout. The new line, however, registers the entry of this veteran house to the class of semi-manufacturing firms, since both engines and gearsets are now special designs used exclusively on these trucks.

The engine and the gearset are Federal products. Five models are now offered, the previous 1 1/2-, 2- and 3 1/2-tonners and new 1- and 5-tonners. The older models have undergone considerable change in the use of Federal gearsets and engines. The new 1-tonner marks a departure from previous Federal practice in its use of pneumatic tires as optional equipment and the absence of the governor. In the heavy truck, too, there is a departure, since Smith hollow cast steel wheels are here introduced first to Federal purchasers.

FEDERAL SPECIFICATIONS					
Capacity, lbs.	2,000	3,000	4,000	7,000	10,000
Price	\$1,650	\$2,100	\$2,300	\$3,000	\$4,000
Wheelbase, in.	132	144	120*	156†	156†
Tires, front	34x3	36x3 1/2	36x4	36x5	36x5
Tires, rear	34x4	36x7	36x5d	36x5d	40x8d
Bore, in.	3 1/2	3 3/4	3 3/4	4 1/4	4 1/4
Stroke, in.	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2
N.A.C.C. hp.	19.61	22.50	22.50	32.40	32.40
Speed, r.p.m.	1245	1190	1125	1150	1150
m.p.m.	18	15	13	12	10
Gear-ratio in high gear	7-1	8 1/4-1	9 1/4-1	10 1/4-1	13 3/4-1
Final drive	worm	worm	worm	worm	worm

*144, 156 and 168 optional. †180 optional.

In all models the engines are supported direct from the mainframes at three points, separate from the gearbox. Three sizes are used for the five models, the 1-tonner having a small model, the 1 1/2- and 2-tonners a medium size, and the 3 1/2- and 5-ton sizes the largest size. All are block-cast with inclosed fly-wheels.

Interesting features of these engines are their detachable heads. Instead of having a single head-piece bolted to the

main block and sealed by gaskets, each cylinder has its own separate head, sealed by a simple round gasket.

A deep flange on these heads fits down into the cylinder for some distance. The fit is ground so that practically a mechanical seal is secured. The gaskets above are mainly to hold the water. All motors have five-bearing crankshafts and waterjackets which extend down to the crankshaft.

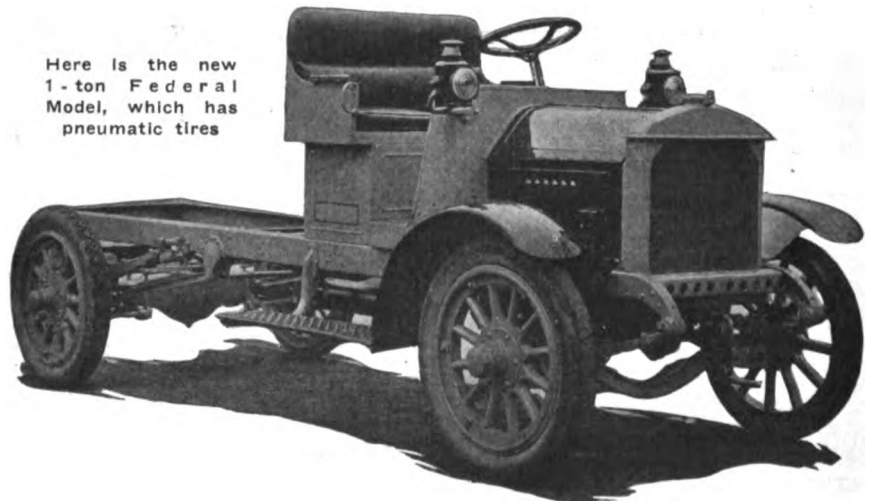
Accessibility is promoted by having separate heads to the cylinders and separate valve plugs. Hand-hole plates between the cylinders and lower crankcase half permit access to interior parts without removing the lower half.

Crank-pin bearings are made easily adjustable by the use of laminated shims, instead of the solid type.

By the removal of this plate the connecting rods may be disconnected and the pistons and rods drawn out through the cylinder heads.

Lubrication is the pressure type, all interior running parts being oiled by pressure up to 50 lb. per sq. in. at 1200 r.p.m.

Here is the new 1-ton Federal Model, which has pneumatic tires



The inlet pipe is bolted to the cylinder block on the non-valve side, the manifold being cored within the casting, so as to pre-heat the charge.

Cooling is by a centrifugal pump through a radiator with vertical helical finned tubes, and a casing of Parker Rust-Proofed pressed steel. There is a Simplex governor, driven from the timing gears.

Single ignition with fixed spark advance is afforded by an Eisemann magneto and Westinghouse starting and lighting equipment is applicable at extra cost.

Borg & Beck dry-plate clutches are on all models. On each, between the clutch and the gearbox, is a primary drive-shaft with two universals, a secondary shaft with two more universals extending to the axle.

The gearbox on each is of the four-speed selective type, save on the 1-tonner, which has but three speeds. These gearsets have ball bearings throughout, except at the front end of their mainshafts, where roller bearings are located.

Compactness has been secured by ex-

tending the teeth of the master gear beyond the layshaft driven gear, these teeth forming the male member of the direct drive jaw clutch of robust proportions the female member being internal teeth on the third-speed mainshaft sliding gear in the case of the four-speed designs, and the second-speed gear on the three-speed one. The sliding gears are on splines instead of a square, six being used on the shaft.

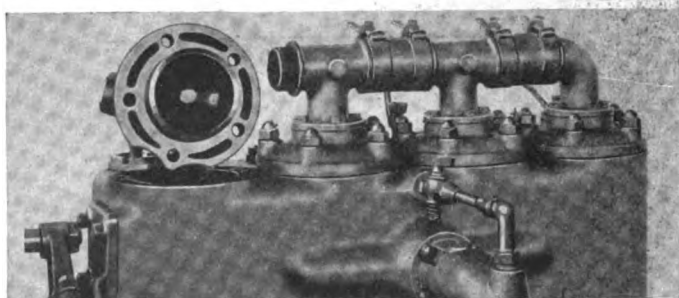
Tubular driveshafts are used. The rear axles are all of Timken manufacture, of the floating type, fitted with the regular duplex internal brakes.

Brake sizes have been increased, the size formerly used on the 3½-tonner being at present employed on the 1½-ton model, with corresponding increases on other models. Torque in each case is taken by the springs, but radius rods are employed for propulsion, even on the smallest model, thus marking the abandonment by the Federal company of Hotchkiss drive. The radius rods are malleable steel castings of I section, having ball joints at the rear, to take care of twisting action.

Federal frames are pressed steel on the small and medium sizes and rolled channel stock on the 3½-ton and 5-ton models. Vanadium steel springs range in length from 40 in. in length on the three smaller models, at the front, to 44 in. on the two larger, and on the rear, 52 in. on the 1-tonner, 54 on the 1½- and 2-tonners, and 56 in. on the largest jobs. The rear springs are supported from rods crossing the frames and flexibly mounted on the channels. Grease cups are not used on the springs, but oil cups instead.

On the 1-tonner the regular tire equipment is solid, but at an extra charge of \$25 pneumatics, 35 x 5 all around, will be fitted. The 2-ton model carries single tires as standard, in the rear, but on option 36 x 4 duals will be applied. The 3½- and 5-tonners are regularly equipped with dual rears. At \$40 extra the 3½-tonner will be equipped instead with 36 x

Detachable cylinder-head in new Federal truck engine. The cylinders are in a block



10 rear singles and at \$60 extra 40 x 12 will be applied to the 5-ton size.

Interesting examples of detail refinement are afforded in the fuel tanks, of 20 gal. capacity on the three small sizes and of 28 gal. on the big ones. These are of drawn steel, placed under the seats, having a flange, carrying the shut-off valve and drain cock and trap. An extension control permits the shut-off to be operated outside the frame.

The seat is all steel with a fully upholstered back, and in the 3½- and 5-ton models it has divided cushions to accommodate three persons. The dash and toe boards are pressed steel, as are also the fenders, which are of the crown type, with apron. Pressed steel is also used for the running boards and hangers. The running boards are filled with hard wood.

Two tractor models are furnished on the 1½- and 3½-ton models. These are mounted on a short wheelbase and are equipped with a turntable or rocking fifth wheel, made with a special bracket for the Federal trucks. A neat form of draw-bar has been mounted on the rear of these and is illustrated in an accompanying drawing.

Capitalists After New Tractor

DETROIT, March 26—It is reported that two groups of financiers are negotiating for the control of the Wolverine Car & Tractor Co., and that some deal

will be negotiated in the near future which will witness the completion of the transfer of the control to one of these groups.

Corbitt Truck Reorganized

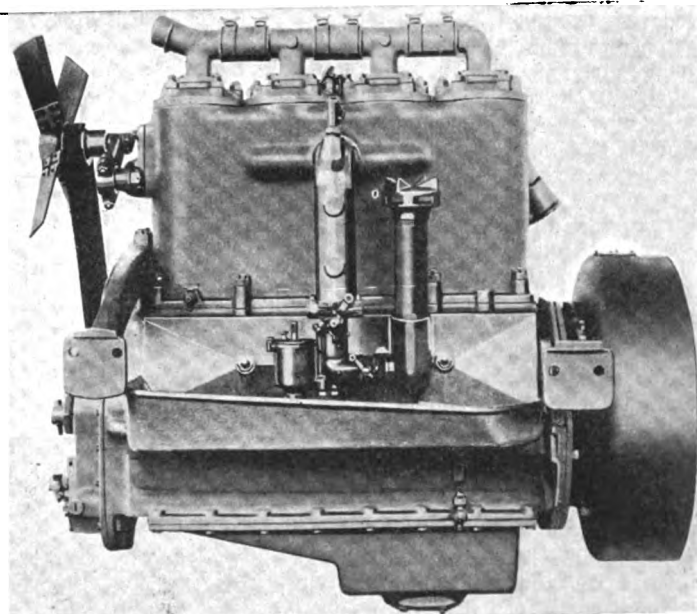
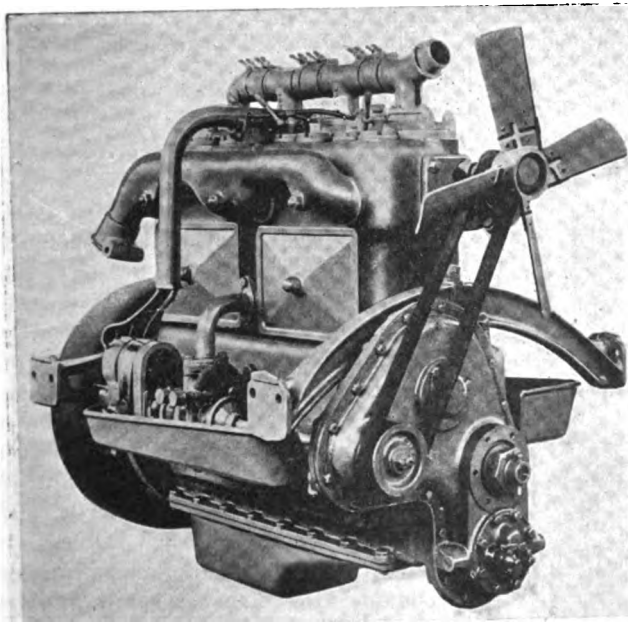
HENDERSON, N. C., March 27—The Corbitt Motor Truck Co. has been reorganized and refinanced and the capital increased to \$1,000,000. The output will be increased to 1,500 trucks per year.

New Van Sicklen Contracts

CHICAGO, March 26—The Van Sicklen Co. has closed new contracts for speedometer equipment with the Grant Motor Car Co., Cleveland; Stephens Motors, Freeport, Ill.; Moon Motor Car Co., St. Louis; Emerson Motor Co., Kingston, N. Y.; Velie Motors Corp., Moline; Rock Falls Mfg. Co., Sterling, Ill.; Piedmont Motor Car Co., Lynchburg, Va.

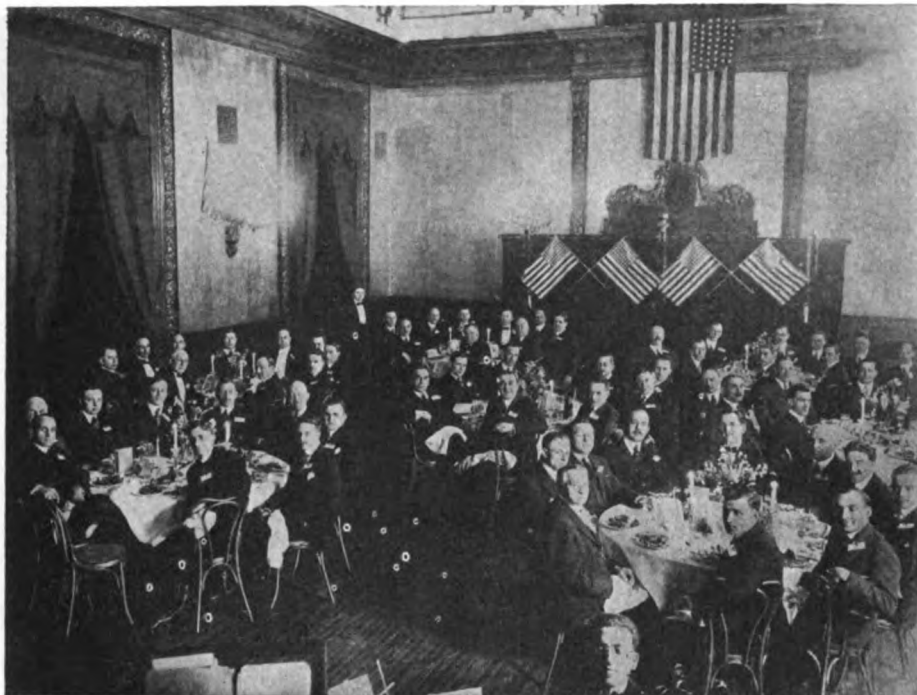
Now the Society of Automotive Engineers

NEW YORK, March 31—The Society of Automobile Engineers will officially change its name to Society of Automotive Engineers on April 19. The new name is more in keeping with the activities of the body, which is now working with aeronautical, marine and farm tractor problems as well as those of the automobile and truck industry.



The two sides of the engines in the Federal truck line. Left is the engine for the 3½-ton vehicles and right is the new 1-ton vehicle engine

329471A



Doesn't look like an axe party, does it? It isn't—although it's the first banquet the Baltimore association had in seven years. Who's the next town to have a "Co-operation Feed"?

Baltimore Dealers Bury the Axe at Big Banquet

First Dinner Since Association Was Formed Seven Years Ago—Co-operation the Keynote

BALTIMORE, March 29—The Baltimore Automobile Dealers' Association assembled to-night at a banquet for the first time since its organization more than 7 years ago. There were 70 around the festive board, which were set in the ballroom on the roof garden of the Hotel Belvedere. Of those who gathered to-night there were but 10 who were on hand when the first meeting of organization was held in the Stafford Hotel, where 20 or 25 men attended.

Osbourn I. Yellott, counsel for the Legislative Committee of the A. A. A., as well as counsel for the Automobile Club of Maryland, and the Baltimore Automobile Dealers' Association sounded the real clarion call of the gathering in an address on Organization and Cooperation. Yellott's closing words:

"You will throw your knives away when you realize the harm individually and collectively you are doing to firms and cars. You are making individuals believe that no car is worth having and preventing quick sales. Make mental resolutions to-night that you will sell your own cars on their own merits and not on the demerits of the other man's cars."

A committee, W. F. Kneip, president of the association; F. S. Bliven of the Standard Motor Co., C. H. Reeves, Jr.,

of the Foss-Hughes Co., aided by H. M. Luzius, secretary of the association, was empowered to arrange for another gathering during April.

The speakers besides Yellott were Dr. H. M. Rowe, president of the A. A. A. and the Automobile Club of Maryland and one of Baltimore's pioneer dealers, and George M. Engler, chief deputy of the Commissioner of Motor Vehicle's office. There were a few impromptu addresses by W. L. Duck, The Winton Co., Arthur Stanley Zell, and Hebert M. Hartman of the Zell Motor Car Co., E. R. Myers of the Motor Car Co., Hugo S. Block, Chandler distributor; Theodore E. Straus of the United Auto Sales Co., Albert W. Loose of the Morton & Loose Corp., and James J. Flynn, manager of the Baltimore branch of the Chevrolet Motor Co.

Among those who attended were: W. F. Kneip, F. S. Bliven, C. H. Reeves, Jr., Dr. H. M. Rowe, Osbourne I. Yellott, H. M. Luzius, L. F. O'Brien, C. B. Weiss (Motor World), C. W. House, C. F. Trace, William A. Turner, William L. Duck, C. J. Larach, Paul Barnhart, Karl G. Harig, John N. Kunkle, John B. Ensor, J. Nechamkin, Arthur S. Zell, L. R. Uhler, A. H. Bishop, E. H. McCauley, H. D. Howell, H. W. Bowker, W. E. Straus, H. A. Waters, Jr., A. A. Ijams, H. S. Block, H. L. B. Keller, Jr., James J. Flynn, C. E. Ridings, Walter Scott, T. E. Starus, Lee Syster, John K. Harper, Charles W. Coggins, C. F. Argabright, B. A. Howard, G. B. Hall, F. M. Olmstead, H. C. Eliason, E. R. Myers, James W. Bartlett, T. Henderson, R. J. W. Hamill, Allen W. Beam, Jr., A. A. Grisham, Frederick J. Kunkle, John H. Neely, P. E. Easter, J. Harry Landbeck, L. E. Lambert, Louis Fox, C. W. Smith, Herbert M. Hartman, J. R. Stirtehoff, John B. Griffin, J. S. Argabright, S. W. Marcus, J. M. Stuart, Allien W. Owens, H. D. Caplan, J. Stewart Smith, A. W. Loose, H. M. Courch, H. A. Mayer, W. L. Davidson and H. B. Rasch.

Durheim Heads Muskegon

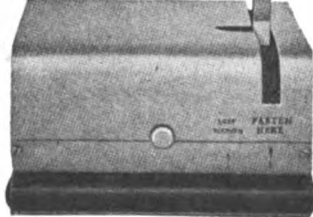
MUSKEGON, MICH., April 2—Garage and accessory dealers have organized the Muskegon Automobile & Accessory Assn. and elected the following officers: President, Charles J. Durheim, Muskegon Automobile Co.; secretary-treasurer, Frank E. Hathaway, Frank E. Hathaway, Inc.

New Inglis Gasoline Pump

MILWAUKEE, April 2—The Inglis Mfg. Co., formerly the Wallmann Pump & Tank Co., has brought out a new automatic measuring device and pump for gasoline. Raising a small lever admits compressed air from a small supply tank and pushes up a hoist, which discharges the fuel directly into the reservoir on the car or truck, and automatically measures quantities from one pint to one gallon, or from one quart to five gallons, as designated on a dial.

Equipping the Dealer's Office

The Spool-O-Wire fastener clips papers together quickly and easily



IT is constantly necessary to fasten papers together. The Hutchison Spool-o-Wire fastener is designed to do this quickly and effectively. It is a small instrument for the desk which automatically makes staples from a spool of wire; one movement makes the staple and fastens papers together. The machine is highly finished metal and is of sufficient weight to operate without being fastened down. It is fitted with a spool of wire which makes about 15,000 staples. It weighs 12 lbs. boxed for shipment and sells for \$15. Renewal spools of wire cost \$1.50 each.—Hutchison Office Specialties Co., 327 Fifth Avenue, New York.

Freight Rate Increase Would Hit Car Buyers

**Increase of 15 Per Cent. Would
Boost \$1,025 Car Into \$1,100
Class—Bad for Parts Makers**

NEW YORK, April 3—In case the 15 per cent increase in freight rates is granted to the railroads by the Interstate Commerce Commission, it will mean the expenditure of additional millions of dollars by the motor car industry, although much of the burden will ultimately be born by the buyers of cars.

In the case of completed cars shipped by factories to dealers, the freight, as usual, will undoubtedly continue as an additional to the retail price and will be paid entirely by the buyer.

One effect this may have on retail sales will be that it will add a slight difficulty in the case of cars which are projected upward into the next hundred. For instance, a car which now sells for \$1,025 plus \$70 freight, which makes the price \$1,095, will, with the addition of 15 per cent to the freight, go up into the \$1,100 class.

It is stated that shippers are not making a very hard fight against the increase in rates and that there is considerable sentiment in favor of giving roads added revenue.

While much of the parts and accessories is shipped by express, the increase in freights will have a more direct effect here upon the jobber and the dealer because it has not been the custom in the accessories trade to add freight with the advertised retail price, this being absorbed by the manufacturer, jobber and dealer, as part of the overhead.

In the appended table are given the old rates, proposed increases and the new rates on standard carload shipments of 10,000 lbs. minimum from Detroit and other central west cities to various shipping points. All the rates are for 36-ft. cars with the exception of those to coast points which cover 36 x 40-ft. cars.

Distances	Old	Increase	New
Toledo and Detroit to			
New York	\$67.70	\$10.15	\$77.85
Cleveland to New York..	61.50	9.23	70.73
Lansing to New York..	82.40	12.36	94.76
Flint to New York.....	79.80	11.97	91.77
Detroit to all coast			
points.....	\$10.00	46.50	356.50
Detroit to New Orleans..	142.40	21.36	163.76
Indianapolis to New			
York	80.60	12.09	92.69
Detroit to Atlanta.....	151.40	22.71	174.11

Chalmers in 24-hr. Test

CHICAGO, March 27—A Chalmers seven-passenger 6-30 as a part of its 24-hr. non-motor-stop test under A. A. A. rules gridironed the Chicago loop this morning in 1 hr., which means that it covered ninety-six blocks, making thirty traffic stops. The car, with four passengers, started the test at 12.20 p. m. and was driven continuously through the parks and over the boulevard system and

much of the time on streets having trolley tracks. When the car was brought to a halt at 12.20 the speedometer showed 586.8 miles, or an average of slightly over 25 m.p.h. Both low and intermediate gears were removed, which left only high and reverse, and the run was made on 42 gal. of gasoline, or at 14 m.p.g. Six quarts of oil were used and 2 gal., 3 pints of water. The test was in charge of L. A. Hillman, A. A. A. representative, and two drivers worked in 8-hr. shifts. Forty-seven minutes were lost in stops. The weight of the car, with four passengers, was 3815 lb. In a similar run in New York recently the mileage was 358.7.

Spacke Is Reorganized

INDIANAPOLIS, IND., April 2—The F. W. Spacke Machine Co. has been sold to a new corporation, organized as the Spacke Machine & Tool Co., involving a manufacturing establishment valued at \$500,000. The new company has assumed operation of the plant, which is engaged in the manufacture of motor car parts.

The old company was organized 13 years ago by F. W. Spacke. Officers of the new company are Daniel S. Brooks, president, formerly secretary Peru Auto Parts Mfg. Co.; James R. Short, vice-president, formerly manager of Peru Co.; Wm. H. McAfee, secretary and treasurer, a Pittsburgh banker. The new company was incorporated last week with a capital stock of \$255,000. Plans are made to enlarge the business of the concern. It is understood that other lines of motor car parts will be manufactured. The company has a \$1,000,000 contract for supplying parts to one of the Detroit car makers.

Branch Plants for Parker

DETROIT, April 2—The Parker Rust-Proof Co. of America will erect branches in principal cities of country. Two factories will be erected in each of the following cities: New York, Chicago, Brooklyn, N. Y., and Philadelphia. One plant will be built in each of these cities: Buffalo, Syracuse, Pittsburgh, Altoona, Boston, Worcester, Hartford, Conn., Bridgeport, Conn., Providence, Newark, N. J., Baltimore, Milwaukee, Indianapolis, St. Louis, Minneapolis, St. Paul, San Francisco, Kansas City, and the following Ohio cities: Cleveland, Cincinnati, Columbus, Dayton, Toledo and Youngstown. The Cleveland plant has been in operation for some time.

New Bradford-Ackerman Account

NEW YORK, April 2—The Bradford-Ackerman Corp. recently formed, has obtained the sole selling rights for Astra high temperature gas apparatus and oxygen welding appliances, produced by Ash-ton, Laird & Co. In addition, the company will market an extensive line of oxy-acetylene welding appliances, and a line of oxy-aluminating appliances.

Engineers Make Ready To Serve the Country

**Society of Automotive Engineers Is
Card-Indexing Its Members for
Preparedness Organization**

INDIANAPOLIS, IND., March 30—The Society of Automotive Engineers has its definite duty in the event of war. Furthermore, in the matter of preparedness it has not been blind to this duty and is already well organized for mobilization of its membership to the performance of the tasks which will evolve upon it. The council is card-indexing the membership of the entire society to locate each man where he will be best fitted. A general committee has been appointed to supervise war activities in the various localities to which the society extends. A committee of three members of the council, known as the Steering Committee, will have charge of the society's activities in Washington. The council has pledged itself to the general supervision of this work. All these men will work night and day, if necessary, to carry on this work in a representative manner.

Members of the society are to build the engines for submarine chasers through an affiliation with marine engineers. They are looked to to build aeronautical engines through an affiliation with the aeronautical engineers, and to build motor convoys and transports. In many cases members will be called upon to man them. On land, air and water the nation will look to the S. A. E. to do this work. These were the points brought out by F. E. Moskovics, chief engineer of Marmon, in his talk to the Indiana section of the society at Indianapolis, March 30.

Good Results with Kerosene

CHICAGO, March 30—Equipped with a G. P. device and the standard carbureter, a distance of 25.5 miles was covered by a Ford on a gallon of kerosene, as against 23.0 miles on a gallon of gasoline, in a test under sanction of the American Automobile Assn., and under the supervision of E. A. Hillman of the Contest Board. With gasoline selling at 21 cents the cost per mile is .91 cents, as compared to .35 cents with kerosene selling at 8 cents.

With the same setting of the carbureter at which the economy test was made, an acceleration from 10 to 25 m.p.h. was made in 15.6 sec. With that adjustment the car idled nicely down to 10 m.p.h., but with a richer adjustment its running was good at 4 m.p.h.

The G. P. system, made by the G. P. Coal Oil System Co., Chicago, heats the intake gas by passing it through a specially designed manifold heated by the exhaust gas. In starting a cold motor, gasoline is used, the change to kerosene being made by a valve on the dash as

soon as the engine warms up. During the test a completely cold motor was started on gasoline and was operating on kerosene in 1 min. 25 sec.

During the entire test there was no evidence of smoke, and except for the necessity of starting on gasoline and the inability to throttle down with the most economical setting to less than 10 m.p.h. no distinction could be seen between the operation on kerosene and that on gasoline. If anything, the operation seemed a little smoother with the heavier fuel.

The manufacturer finds it necessary for best results to lower the compression by putting in a 1/4-in. gasket between cylinder and cylinder head.

The system is manufactured in three sizes, and is applicable to practically any car. The Ford equipment sells for \$25.

Dealer Organizing Motor Reserve Corps

OKLAHOMA CITY, April 3—E. R. Carhart, president of the Carhart Motor Co., Overland distributor, is organizing a motor vehicle reserve corps, composed of citizen owners of cars. Carhart believes his plan offers a wide field for action for other distributors and is of the opinion a little organization of this kind at this time will do much to increase the national efficiency in case of need.

The object of the corps is to facilitate and expedite the mobilization of state troops although the idea was originally inspired by the threatened railroad strike. The idea is approved by Adjutant General Ansel Earp. Since Carhart approached the idea, companies have been formed in Oklahoma City and Nowata, and the nucleus for other companies has been formed at Ardmore and Aida. Each company will consist of 32 car owners.

The owners pledge the use of their cars and their services in mobilization work.

Urge Car Owners to Enroll

NEW YORK, April 2—The U. S. Marine Corps has issued a call to motor car owners who wish to serve their country to enlist in what is termed the Marine Corps Reserve B. Citizens who are capable of performing special useful service in the Marine Corps in the defense and maintenance of naval utilities, are eligible for membership in this class. For example, owners and operators of cars, trucks, motorcycles, aeroplanes, and other craft suitable for purposes in defense and maintenance of naval utilities, may be enrolled in this class and contracts made with such owners to take over their vehicles and crafts in time of war or national emergency upon payment of a reasonable indemnity.

Organize Canadian Dodge Co.

WINDSOR, ONT., March 30—The Dodge Bros. Motor Co., Limited, has been organized with a capital stock of \$100,000 divided into 1000 shares of \$100 each. The incorporators include John Frank Dodge, Horace Elgin Dodge, Frederick Jacob Haynes, works manager, Arthur Irving Philp, sales manager and Alfred Lynn McMeans, secretary, all of Detroit.

Advance Rumley Profits Top \$238,000 for 1916

Tractor Manufacturer Has Total Assets of \$33,476,569—Will Run Laporte Plant to Capacity

LAPORTE, IND., April 2—The annual report of the Advance-Rumely Co. covering 1916 shows net profits of \$238,478. It recites that a contract has been negotiated whereby the Toronto plant will show some profit from the operation of this year; that the Laporte plant will be run to capacity, while the Battle Creek plant will continue to be the main reserve for expansion. The Stillwater plant will continue to be used for storage purposes. In addition to the rehabilitation of the various plants the company has spent \$180,523.47 in current repairs. The gross profits from operations was \$1,757,344 and added to this was the income from interests on notes receivable, investments, etc., \$420,976.60 making a total income of \$2,178,320.60. Out of this came the selling, general and administrative expenses, \$1,689,941.23, making the new profits from operations, \$488,379.37. After paying debentures and other interest amounting to \$204,901, it left the net profits for the year.

The balance sheet shows the total assets to be \$33,476,569. The total value of the property, including factories and branch houses, machinery and equipment is given as \$3,949,596.45. A value of \$14,172,304.61 is placed on good will, patents, designs, etc. The current assets consisting of raw material, supplies, finished products, etc., amount to \$6,554,937.90; customers' notes and interest amount to \$5,626,769.92; dealers and other trade accounts amount to \$203,111.07; miscellaneous accounts receivable \$77,453.83; investment securities \$480,005; cash in hand and in bank \$2,370,813.62. The total liabilities of the company of all kinds amount to \$33,476,569.52. The annual meeting of the company is called for April 9.

Marlin Interests Get Mayo

NEW HAVEN, CONN., April 2—The Mayo Radiator Co. has been taken over by interests allied with the Marlin Arms Co. which recently took over the Standard Roller Bearing Co. and the Rockwell-Drake Co. The Mayo business will be expanded with enlarged capital. Virginius J. Mayo, who founded the company in 1905, will continue to be connected with the company. It is proposed to increase the output from 400 radiators a day to 1600.

Canadian Chalmers Plant Burned

WINDSOR, ONT., March 31—Fire of unknown origin, on March 30, completely destroyed the Canadian plant of the Chalmers Motor Co. of Canada, in Ford, Ont. The loss is placed at a quarter of a million dollars, fully covered by insurance. The Chalmers plant, a branch of

the parent concern, in Detroit, was established about 7 months ago, and employed about 120 men. It occupied a 2 story brick and steel building, with a frontage of 100 ft. and a depth of 350 ft.

Duesenberg is Reorganized

ST. PAUL, March 31—The Duesenberg Motors Corp. has succeeded the Duesenberg Motor Co., St. Paul, and the Loew-Victor Engine Co., Chicago, the capital of the new company being \$1,500,000. A plant has been established at Edgewater, N. J. The new company will build motors of the highest grade suitable for cars selling from \$2,000 up. The personnel of the organization follows. Directors: J. R. Harbeck, F. S. Wheeler, Charles Stollberg, K. S. Breckenridge, L. A. Wells, F. B. Page. N. G. Rost is sales manager and F. S. Duesenberg is chief engineer.

Baker Heads Detroit Dealers

DETROIT, April 3—Charles E. Baker was elected president of the Detroit Automobile Dealers' Association at the annual meeting and banquet last night. The other officers elected were: Vice-President, George W. Franklin; secretary, Walter J. Bemb; treasurer, A. L. Zeckendorf. Former president, W. J. Gordon was elected to the board of directors. According to the treasurer's report, the association had an exceptionally prosperous year and at present is in a better financial condition than ever before.

Welbon Forming Doble Agencies

DETROIT, March 30—W. G. Welbon is in Detroit forming three companies to handle the Doble steam car, the Ohio Doble Steam Car Co. of Cincinnati, the Indiana Steam Car Co. at Indianapolis, and the Kentucky Steam Car Co. at Louisville. In addition to these three states Welbon probably will also handle W. Va.

More Room for Haynes

KOKOMO, April 2—Plans for a new plant for the Haynes Automobile Co. include the purchase of a tract of land of sixty acres for a site, and buildings will be erected with a ground-floor space of from 12 to 15 acres. The breaking of ground for the new plant will be started April 15. The company recently purchased thirty acres of ground adjoining its present plant, but it was found that the ground was too small for the company's needs and that the type of buildings that have been designed could not be built there.

Bowser Increases Capital

FORT WAYNE, April 2—The S. F. Bowser Co. has increased its capital stock from \$800,000 to \$1,250,000 to provide for expansion. The estimated business for the present year is two millions of dollars, a 25 per cent increase over the sales receipts of 1916.

The Whole Industry Ready for War

Great Detroit Plants Already Making Munitions in Some Cases and Others Preparing

FEDERAL CONTROL IN AKRON

Goodrich Lists 1000 Men for Service and Goodyear Makes Dirigible Balloons

DETROIT, April 3—The national crisis finds the industry ready. Many car and parts makers already are engaged in the manufacture of munitions, aeroplane motors, trucks and other war needs, and every plant has stated its readiness to either turn factories over or operate them for government requirements.

While there must of necessity be certain secrecy maintained about various activities, and refusal to divulge operations or plans, it may be said that the machinery of every plant has been listed and indexed so that the government knows just what demands it can safely make.

One of the large parts companies is engaged now in the manufacture of shells. At least three motor car factories are making munitions in a small way to keep men informed and machinery in readiness. One large manufacturer has practically perfected an aeroplane motor which, as soon as experiments are completed, will be made in great quantities, and a number of other plants are engaged in similar work.

The stranger at the different factories finds himself carefully watched, and must have passes from the important officials of concerns before he is allowed to venture beyond the front door.

Several factories maintain armed guards about the building, and a number, while admitting activities along these lines, refuse to divulge the scope of operations.

Akron, Ohio, where large rubber plants are located, is completely under federal guard, and the Goodrich plant has been inventoried by the government, which has listed 1000 Goodrich employees for manufacturing purposes. The Goodyear Tire & Rubber factories are engaged in the making of dirigibles for army purposes.

The Society of Automotive Engineers is making active preparations to meet the need for trained men. Racing drivers have already organized for the aviation section of the army, and 26 have signed, while 10 remain to be heard

from. Among those signed are Joseph Boyer, Jr., Ralph Palma, Eddie Rickenbacher, Billy Chandler, Ira Vail and Louis Fontaine. Ralph Mulford, now en route from Florida, is expected to sign. Louis Chevrolet is organizing an engineering department, of which he will be a member.

It is thought likely Howard Coffin, vice-president of the Hudson Motor Car Co., and commissioner in charge of munitions, will be appointed secretary of munitions of the President's cabinet.

The various divisions of the General Motors Co. are momentarily expecting word from W. C. Durant, who is speeding eastward from California, to extend aid. It is believed he will offer his engineers and trained men for government work, and will be ready to turn over his many factories for government work.

Maxwell has about 1000 trucks in process of manufacture that can be turned over to the government if needed, and the company stands ready either to turn over the plant or divert operations as the government sees fit to demand.

Willys-Overland and Ford have already expressed willingness to give their plants over to government needs.

Cadillac has written the government stating that it is able either to make a special transport truck or special transport automobiles or army trucks or aeroplane motors, and can convert its body plant into an aeroplane body factory.

In fact, these are the plans and views of practically every manufacturer, though many refuse to discuss the subject. Dealers everywhere will find spring plans changed and may have to make new arrangements for a continuation of business.

Gem Is Getting Ready

GRAND RAPIDS, March 31—The Gem Motor Car Corp. is getting ready for production on a line of passenger cars and trucks. The chassis are to be provided by the Detroit Chassis Co., which is reported to have a contract for 1000 of these, with deliveries already under way. As a touring car the product will sell for \$845, with an open express commercial body the car will sell for \$675; with a canopy top, \$700, and with a full panel body, \$725. Some of the leading specifications include a Golden, Belknap & Swartz 3 3/4 x 4 1/4 engine; ignition by Conneticut system; semi-floating rear axle on Hyatt bearings. Springs are 35 in. semi-elliptic front, and 48 in. three-quarter elliptic rear. The wheelbase is 112 in. On the touring car the body is a five-passenger design with flush type of upholstery and Crown fenders. The body is Brewster green, the wheels cream, and the fittings in nickel.

Chevrolet Has a House Organ

DETROIT, April 2—The Chevrolet Motor Co. has invaded the house organ field. Volume 1, No. 1, of the "Chevrolet Review" has been issued. It is a 16-page magazine-size paper intended largely for the owner.

Tires Go Up 5 to 15% ; Cotton Shortage Cause

Ships Lacking for Imports and England Has Placed Embargo on Egyptian Cotton

NEW YORK, April 2—Tire prices have gone up, increases ranging from 5 to 15 per cent. To-day's increase includes nearly every large tire company. Kelly-Springfield has gone up about 6 per cent; Goodyear has risen 10 per cent on all sizes; Goodrich has gone up 10 per cent on its Silvertown straight side, its regular fabric tires, and on its tubes, and 15 per cent on its Q. D. and regular Silvertown cords; U. S. Rubber Nobby treads up to and including 3 1/2 in. sizes are 10 per cent higher; U. S. round Usco and chain treads are also 10 per cent higher. All of the cord sizes are 10 per cent higher. Firestone tires are 10 to 12 1/2 per cent higher and Michelin tires are 10 per cent higher on the shoes and 5 higher on the tubes. Fisk prices are up 10 per cent on all sizes. Ajax expects to go up 10 per cent.

Though no action has been taken by the other companies in regard to changes in their lists, they are expected to go up, as there is a shortage in materials with high prices. The increase in prices has been laid to lack of cargo space in ships from Europe and the embargo on Egyptian cotton by England. Fabric prices have been affected as a result, the tire makers paying as high as \$1.25 a lb. as compared with 66 cents a year ago. Rubber prices are stationary. It is stated that if American ships could be sent to Alexandria, Egyptian cotton could be had far much cheaper than it is selling.

Many Parker Licensees

DETROIT, March 30—The Parker Rust Proof Co. now includes among its licensees the Packard Motor Car Co., Reo Motor Car Co., the Byrne-Kingston Co., the Carter Carburetor Co., the Marvel Carburetor Co., Chalmers Motor Car Co., Houk Mfg. Co., Sparks-Withington Co., Firestone Tire & Rubber Co., Harrison Radiator Co., and the Perfect Window Regulator Co.

Dodge Prices Raised

DETROIT, April 3—Dodge Brothers have raised the price of the Dodge car, effective April 1, as follows: Chassis, \$750, touring and roadster models, \$835, old price \$795; winter cars, \$1,000; sedans and coupes, \$1,265.

Willys-Six At New Price

TOLEDO, March 31—Following the recent increase in price of several Overland models the Willys-Overland Co. announces that the Willys-Six will sell at \$1,425 after April 1.

Crow Advances \$50

ELKHART, IND., March 31—The Crow-Elkhart Motor Car Co. will advance the price of its touring and cloverleaf models to \$845 on April 14. The old price was \$795.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Frank L. Butler, for the past two years connected with T. C. Nicholas Motor Car Co., Quincy, Ill., went to the Smith-Foster Motor Car Co., Sharon, Pa., as service manager, April 1.

L. B. Berger, Assistant Treasurer in charge of the sales of the Lozier Motor Co., Detroit, has resigned, effective March 31.

F. A. Trinkle has been appointed field service manager for the United States Motor Truck Co., Cincinnati.

W. H. Latschaw, general manager of the Pennsy Motor Co., Pittsburgh, has resigned. G. L. Sintz, assistant engineer, has also resigned to become purchasing agent for the Pullman Motor Co., York, Pa.

J. E. Brooks will have charge of sales for the Lehman Mfg. Co., Connelton, Ind., manufacturer of Lamco speed bodies for Fords, Maxwells and Overlands.

Frank L. Hess, assistant production manager of the National Brake & Electric Co., Milwaukee, on April 1 assumed the duties of general manager of the Mulkern Garage Co., Milwaukee, incorporated recently with a capital stock of \$150,000.

A. E. Walden, who resigned from the experimental department of the Chalmers Motor Co. last year to become service manager for C. T. Silver Co., New York, has returned to the Chalmers company in the capacity of experimental engineer.

Arthur Cavaney, of the sales department of the Ford Motor Co., Milwaukee, has resigned to become manager of the E. R. Bacon Co., Los Angeles, distributor of Sterling trucks and dealer in contractors' equipment.

W. A. King, production manager of the Tulsa Automobile Co., has resigned his position to become the general manager and engineer of a new company to be formed in Oklahoma City, which will manufacture a light six.

F. E. Horner has been made divisional manager for the Prest-O-Lite Co., Indianapolis, and will have his headquarters in Atlanta. He is succeeded by J. B. Jones.

George E. Drawe has been appointed assistant general manager of the Mutual Motors Co., Jackson, Mich. He was formerly connected with the Allen Motor Co., Fostoria.

H. R. Cooley has been appointed sales manager of the Mutual Motors Co., Jackson, Mich. He was formerly with the Jackson Automobile Co. and latterly with the Lewis Spring & Axle Co., Chelsea, Mich.

G. S. Hagerman, for several years Miller tire salesman for the National Rubber Supply Co., Denver, has been made office manager of that firm's new Omaha branch, the Miller Rubber Company of Nebraska.

H. A. Harvey is now salesman for G. W. Linger, Denver, Mitchell distributor for Colorado and Wyoming. He was formerly Buick agent for three Wyoming counties, with headquarters at Gillette, Wyo.

H. J. Hicks, Denver, has been given charge of the wholesale business of the National Motor Co., National and Elgin distributor for Colorado, Wyoming and New Mexico.

Lyman E. Towne, Denver, has been made sales manager of the Miller Rubber Co. of Nebraska, with headquarters in Omaha, and Nebraska and western Iowa as territory. He has been salesman several years for the National Rubber Supply Co., Denver, of

which the Omaha concern is a new branch.

Paul A. Ross has been made sales manager of the Rocky Mountain Motor Co., Denver, Moon, Locomobile and Little Giant distributor for Colorado, New Mexico and Wyoming. He was formerly Pathfinder salesman for the Mulnix & Rarie Auto Sales Co.

W. C. Davies has become secretary and comptroller of the Burd High Compression Ring Co., Rockford. Up till the present he has been auditor at the Chicago branch of the Hudson Motor Car Co.

F. W. Solarek, who formerly represented the Elyria Iron & Steel Co. in Ohio and Western New York, is now representing the company in Michigan with headquarters at 1934 Dime Bank Building, Detroit.

L. D. Brown, who has been cashier of the First-Second National Bank of Akron, has become treasurer of the B. F. Goodrich Co., succeeding W. A. Means. Means was elected second vice-president at the last annual meeting.

Maxton R. Davies, manager of the Detroit office of the Dunlap-Ward Advertising Co., has been elected vice-president and secretary of the company. He will continue in charge of the Detroit office.

Roy D. Heartz, former sales promotion manager of the Hupp Motor Car Co., has accepted the position of assistant sales and advertising manager of the Moreland Truck Co., Los Angeles.

George R. Cullen, formerly of the advertising department of the Hudson Motor Car Co., has joined the Chalmers Motors company's advertising force.

W. A. Summerville, western division sales manager for the Republic Motor Truck Co., Alma, Mich., has resigned and becomes zone sales manager for the Winther Motor Truck Co., Kenosha.

E. T. Birdsall, mechanical engineer, has been appointed consulting engineer of the Pullman Motor Car Co. Geo. McCrickett, former chief draftsman of the Pennsy Motors Co. under Birdsall, has resigned to take a similar position with the Pullman company.

W. T. Hunt has resigned as laboratory engineer of the experimental department of the Packard Motor Car Co. to join the Duesenberg Motors Corp. He will do special work for the Duesenberg company and will eventually be stationed at the new plant now being erected at Edgewater, N. J.

Mat X. Chuse, vice president of the Cadillac Co., Peoria, has severed his connections with that concern to become secretary of the Peoria District Fair association, succeeding Walter O. Ireland, resigned.

E. T. Kleo, manager service department of the Stutz Motor Car Co., Indianapolis, has resigned to accept a similar position with the Premier Motor Corp., Indianapolis.

B. W. Scott has been appointed purchasing agent for the Puritan Machine Co., Detroit. He was at one time supervisor of service for the Studebaker Corp.

Karl M. Wise has been added to the staff of the Detroit Testing Laboratory and will have charge of the automobile and metallurgical department. He was formerly assistant engineer with the Chalmers Motor Car Co.

Charles D. Jenney has been appointed chief consulting engineer of the Detroit Model Lock Co.

George R. Cullen, formerly of the advertising department of the Hudson Motor Car Co., Detroit, has joined the advertising force of the Chalmers Motor Car Co.

G. Franklyn Burger has resigned his position as sales and advertising manager of the Vincent Clear-Room Steering Wheel Co., Detroit. His future plans have not yet been announced.

Employees to Be Taught Science of Body Design

N. A. C. C. Takes Over School and Will Extend Correspondence Courses to Factory Workers

NEW YORK, April 3—In order that technical education may be placed within the reach of factory employees and that better men may be made available for body designing, the National Automobile Chamber of Commerce has taken over a technical school of body designing in this city and will extend its scope.

The employees of any manufacturer of cars or bodies are eligible for admission. There are two classes of instruction, correspondence and class room. Class room instruction is free. Correspondence instruction costs \$24 for three terms, made up of \$6, \$8 and \$10 respectively. The length of time of the correspondence course depends largely upon the student.

The school is the Technical School for Automobile Draftsmen and Mechanics, which is located at 20 West Forty-fourth Street, this city. It was founded in 1880 by the carriage builders, who sustained it until three years ago when they asked the automobile manufacturers to contribute to its support. The backing of the carriage people has since then lessened and now the automobile interests have taken over the work entirely. Two hundred and fifty men are enrolled in the correspondence course.

The reason for the taking over of the school is said by Alfred Reeves, general manager of the N. A. C. C., to be the need for body draftsmen. As fast as men are graduated they are placed in car and body factories and there is always a demand much in excess to the supply.

The course covers the variety of subjects essential to body designing work. Particulars may be obtained by addressing the school. With the proposed extension of the work there have been added to the committee in charge: Charles H. Clifton, president of the Pierce-Arrow Motor Car Co.; H. H. Rice, treasurer of the General Motors Co.; Alfred Reeves, general manager of the N. A. C. C.

M. J. Monson has retired as manager of the Buick Motor Co., Milwaukee, to go into business for himself. Monson for the last four years was manager of the Milwaukee-Buick branch. His new connection is in the retail trade of Milwaukee.

Joseph H. Browning, for the past few years sales manager of a division of Deere & Co. in the farm implement trade, has become identified with the Buick Motor Co., Chicago.

Lee Powell, representative in Kentucky of the John Deere Plow Co. for four years, has joined the Buick Motor Co., Chicago.

E. B. Wilson, formerly of the Buick Motor Co., Chicago, has been transferred to Flint, Mich., as special factory representative.

A. C. Hyser, formerly manager of Atlanta branch of the Willard Storage Battery Co., has been appointed general service manager for the Willard company, with headquarters at the home office in Cleveland.

Uncle Sam, In a Hurry, Gets Truck Club's Aid

Regiment Is Transported From New York to Point of Duty—Club Solves Transport Problem

NEW YORK, April 2—Merchants, car and truck dealers and secretaries of trade associations have been given a lesson in practical preparedness by the Motor Truck Club of America. When, on Saturday last, a New York regiment was ordered to report "somewhere in New York" with all its camp equipment and paraphernalia, the Motor Truck Club jumped into the breach and supplied enough trucks on short notice to transport all the equipment.

Early on Sunday morning sixteen trucks of various makes and capacities started fully loaded on a 65-mile trip, and all of them reached their destination without trouble by 8 p.m. that night.

The whole matter was engineered by the Motor Truck Club of America working in conjunction with the commandant of the regiment. This club has been working on practical preparedness lines. Last year it inaugurated two test runs, which demonstrated conclusively that heavy trucks are well suited to army needs. And now it has demonstrated that it is quite capable of supplying adequate transportation facilities in time of need and in a short space of time.

The action of the club, which is composed almost entirely of truck owners, with a small sprinkling of truck dealers, makes plain the tremendous possibilities of united action in time of stress. It also points out the need for such action now.

There are hundreds of motor car trade associations throughout the country which might do just such work as this body has done. They might list all merchants using trucks in their communities together with the capacities of the trucks and types of bodies, etc. This would give an instantly available record of the preparedness of the community to cope with a situation similar to the one in New York.

They might go further and secure the consent of truck owners to the use of their vehicles for such purposes. It would then be only the work of a few minutes to 'phone owners and have any desired number of trucks up to the number available report at some central depot at a designated time.

This is what was done by the Motor Truck Club of America. When the commandant of the regiment approached President Roderick Stephens, of the club, Stephens had all this data available.

The trucks were donated free with their drivers. The government was required to pay only for gasoline and a lunch for the drivers. The capacities of the trucks varied from 3 tons to 6½ tons, and the vehicles were drawn from

such trades as breweries, coal dealers, express companies and other retail and wholesale tradesmen. The makes represented included Packard, Mack, Benz, White, Saurer, Pierce-Arrow, Knox and some vehicles produced by the Knickerbocker Ice Co.

Trade Entertains Students

ST. LOUIS, MO., April 2—The St. Louis Carriage, Wagon and Automobile Builders Association, last week entertained at dinner the carriage and vehicle design and drafting class of the Central High School. The association was primarily responsible for this course being offered in the school. President Louis Moller, Jr., of the association, announced that cash prizes had been offered for the three members of the class making the best progress during the term. Several practical builders spoke at the dinner on pertinent topics.

Schlecht Next St. Louis President

ST. LOUIS, April 2—Joseph A. Schlecht, president of the Mound City Buggy and Auto Co., will be elected president of the St. Louis Automobile Dealers and Manufacturers' Association. He is the only nominee. Under the new rules, blanks are distributed to each member on which he can make a nomination. W. L. Johnson, chairman of the nominating committee, has received the replies. All but one selected Schlecht. The other offices will be contested. Schlecht is treasurer of the association, and has been chairman of the Show Committee for two years.

Raleigh Holds Successful Show

RALEIGH, N. C., March 31—Raleigh held a very successful show the last four days of last week, in the City Auditorium. Twenty-seven dealers were represented, showing 31 makes of car and 50 different models, this being all the floor would accommodate.

Over 5000 paid admission to the show and the dealers report 80 sales, the show netting \$96,000 of business. Over 375 dealers from surrounding territory registered. Hawaiian entertainers from New York were employed. The show was managed by John Kelly, of Philadelphia, who has been engaged to manage next year's exhibition. Steps are under way to enlarge the show space.

The dealers have formed the Raleigh Automobile Trade Association. The president is Mr. McElner, Olds dealer; the secretary is Mr. Murchison, Standard Garage.

Uniontown For Mobilization

UNIONTOWN, PA., March 29—The Uniontown Speedway Assn. has given over its track and grounds for mobilization work for automobile drivers and aviators. The camp will be opened within 2 weeks. W. H. Pickens will have charge of the racing drivers. Races will be held to defray the expenses of carrying on the work.

St. Louis Has To Drive Its Cars From Michigan

Hupmobiles and Reos Are Driven 600 Miles Overland—Stutz Drive Not So Hard

ST. LOUIS, April 2—Shipping conditions have finally forced St. Louis dealers into taking the step they had hoped to avoid—that of driving cars from Detroit factories to point of delivery. This had been planned from Indiana factories, but conditions have not been such that shipments have not come through after medium delays. But from Detroit it has become a different story. Two drives were organized last week, each practically 600 miles.

The first was that of the Weber Implement and Automobile Co. Officers of the company and dealers in nearby towns went to Detroit last Monday to drive home 25 Hupmobiles. Later in the week Secretary Fahrenkrog of the Kardell Motor Car Co. organized a party to bring 25 Reo cars from Lansing. In this case several Reo owners who were buying new cars were taken to the factory to drive home. This drive was about 600 miles. The Supreme Motor Co. is driving Stutz cars from the factory where they are wanted in haste but has not organized any driving parties.

Since last summer it has been a custom for country dealers to come to St. Louis and take needed cars home. But the Detroit drive is about 600 miles and even those who contemplated drives had hoped to wait until later in the season. Both drives last week were favored with excellent weather.

Rochelle Trade Organizes

ROCHELLE, ILL., April 2—The Rochelle Automobile Trade Association has been organized and will hold monthly meetings. Thad M. Graves was elected president, other officers being: vice-president, C. E. Lazier; secretary-treasurer, C. E. Valentine; director, James Sherlock. J. C. Thorpe, general director of the National Automobile Trade Association, assisted in the organization. The meeting was addressed by Thorpe, J. S. Joslyn and W. B. Taylor, the latter two of the Rockford Automobile Trade Assn., Rockford, Ill.

Full Measure in St. Paul

ST. PAUL, April 2—Following an investigation resulting from complaints that hand pumps did not deliver full amounts of gasoline to tanks in automobiles, C. C. Neale, State Commissioner of Weights and Measures, finds consumers get full measure. It has been found that the percentage of devices in error is only 8 per cent as against 80 per cent reported in Illinois. Not all the deviations in Minnesota are against the consumer, some favoring the motor car owner.

Kansas City Garagemen Start Trade Uplift Plan

Form Association Which Is Particular as to Membership and Promotes Fair Dealing

KANSAS CITY, March 31—The garagemen and repairmen of Kansas City have started on a new tack in organization work—and are making rapid headway.

Their new slogan is a fair deal to each other and the public; and the protection of the public from men in the business who do not live up to proper standards.

Several garagemen have been trying to put over this sort of organization for more than a year, and in the past few weeks they have made big headway. There was an accessory association in Kansas City, including the jobbers and tire men as well as the garagemen. It didn't work.

So the garagemen decided to form an association of their own, and this they have done. The sound basis of the new form is indicated in the fact that there are 147 members who have paid their initiation fees and their dues to July—a dollar a month—and have subscribed to the constitution and by-laws. Further, they are living up to the regulations laid down by the association. This constitutes a large majority of the leading garagemen and repairmen of the city.

One of the most important committees of the Kansas City Garage and Repairmen's Association is that on membership. Every application is carefully investigated, and the committee must be sure that the applicant is responsible and reliable, and will live up to the standards set, or he will not be admitted.

Another important committee is that on municipal legislation. It is now pushing through the city council several measures designed to protect the garagemen and the public, especially as to stolen property. One measure requires that a report be made to the police on every car that is brought in for storage, repairs or any other purpose within 5 hours of the receipt of the car at the garage or repairshop. It is hoped that this measure will enable the garagemen to assist materially in locating stolen cars.

Further, the association will have its own investigating committee, to which reports will be made of suspicious circumstances connected with any car brought to a garage or repairshop for any purpose. For instance, if a car looks as though it has been abused, the garageman will act on the assumption that there is possibly something crooked about the ownership or possession.

The association has an investigation committee also, to receive complaints against any member concerning work he has done for a customer. One recent

case is typical. The customer believed he was overcharged. The committee discovered that the repairman had made a mistake of \$1.09 on his books. The repairman refunded this sum to the customer. In this case there was merely an error. But if there had been a different sort of mistake, the repairman might have been subject to a fine, which would have gone into the funds of the association.

Within the next few weeks the association will exploit this service to the customers, so that the automobile public of Kansas City may know it can receive square treatment from any garageman or repairman of Kansas City who is a member of the body.

Posters will be displayed in the shop of each member, announcing that he is a member of the Kansas City Garage and Repairmen's Association; and the announcement will be made on the poster that customers who have grievances may report them to the investigating committee. The names, addresses and telephone numbers of the committee will be printed on the cards, so that the customers will have no trouble getting into touch with them.

The association already is identified by cards posted in the shop of each member, on which are the words:

"We are members of the Garage and Repairmen's Association of Greater Kansas City." And already the public is beginning to recognize this sign as an assurance of square dealing.

It is also contemplated to arrange a system of reporting all purchases of supplies except those secured from established jobbers or manufacturers. These reports will be filed with the police department, as an aid in detecting thefts of accessories.

The officers of this new and active association are: President, A. Francis; vice-president, F. P. Tandy; secretary, Preston Forsee; treasurer, Harry A. Lee.

Board of directors: A. Francis, H. L. Brown, Frank P. Tandy, A. W. Laster, Perry Stafford.

Standard Parts Gets Western

CLEVELAND, March 31—Announcement was made to-day of the acquisition of the Western Spring & Axle Co. by the Standard Parts Co., Cleveland. The Western Spring & Axle Co. has a capitalization of \$4,000,000 divided between common and preferred stock. The basis of sale to Standard Parts is a share for a share exchange for Standard Parts preferred and common issued. The price of the latter being figured on the basis of between \$88 and \$89 a share. President E. J. Hess of the Western Spring & Axle Co. will become a member of the Standard Parts board as will also W. E. Bock of the Bock Bearing Co., Toledo, which the Standard Parts Co. recently purchased. The directorate of the Standard Parts Co. is being further enlarged by the addition of John A. Kling, president of the Cleveland Builders Supply Co., and M. H. Murch of Cleveland.

Texas Expects Gasoline Will Go to Thirty Cents

Big Oil Companies Predict The Increase - Say More Is Being Exported Than Used Here

DALLAS, April 2—Thirty cent gasoline is in prospect for Dallas. It is now selling at 21 and 22 cents. Prominent local officials of big oil companies are predicting this increase in price. The demand for gasoline has increased so rapidly that the big refineries which in the past have had a surplus at this time of the year to-day are selling all they refine. As a general rule, these officials say, the refineries accumulate a large surplus during the winter for use during the summer. This winter they have sold all the oil they refined and now are running on production. Another official said there is more oil being exported now than is being used in the United States. He said the companies could get more money for oil delivered on boats at Texas ports for export than the retailers are getting for it here in Dallas.

Membership Campaign For Ohio

COLUMBUS, March 31—The reorganization committee of the Ohio Automobile Trade Association, consisting of J. P. Gordon, Harry J. Schwartz and Charles Justus, is working on the membership campaign which will be started soon both by circular letters and personal solicitation. It is planned to reach every garage owner, dealer and accessory dealer in Ohio.

To Handle Rogers Trailers

NEW YORK, March 31—The Rogers Bros. Co. of New York has been formed and will take over the entire exportation and practically all of the Eastern United States territory for the distribution of Rogers steel trailers. Harry Lauterbach and Geo. E. Faille are the principals in the new company which will have headquarters at 50 East Forty-second Street, New York. The trailers are made by the Rogers Bros. Co., Albion, Pa.

More Room for Aluminum Goods

MILWAUKEE, April 2—The Aluminum Goods Mfg. Co., Manitowoc, Wis., with plants at Two Rivers, Wis., and Newark, N. J., has awarded contracts for the erection of a \$350,000 plant in Newark, to be ready Nov. 1. The Manitowoc works now are being doubled in size. The new Newark plant will be six stories, 75 x 380, of reinforced concrete, brick and steel. More than 300 men are employed at Newark at this time, and the force will be increased to 500 when the improvement is completed. Later it is planned to enlarge the Two Rivers branch by a large shop structure. George A. Vits, president and general manager of the company, is now in the East to supervise preliminaries for the additions at Newark.

Traffic Tunnel Planned from New York to Jersey

Entire Road System of New Jersey to Be Revised Under Goethals of Panama Canal Fame

TRENTON, N. J., April 2—The entire road system of New Jersey is to be re-organized at a cost of \$15,000,000, and this will include the construction of 600 miles of improved roads, the building of a traffic tunnel under the Hudson River and a bridge over the Delaware to link up the State highway systems of New York, New Jersey and Pennsylvania. The work will be under the supervision of General George W. Goethals, builder of the Panama Canal, who has been appointed chief engineer of the State of New Jersey.

General Goethals will start on an inspection tour of the State highways April 4. He will study the existing system and its administration and will develop a systematic revision, which can be carried out within 5 years. Co-operating with General Goethals and State Highway Engineer R. E. Meeker will be the Board of State Highway Commissioners, including Chairman John W. Herbert, Anthony R. Kuser, Senator George W. F. Gaunt, Colonel E. A. Stevens, Watson G. Clark, Walter J. Buzby, Ira Kit, Jr., and George E. Blakslee.

Michigan Jobbers Organize

DETROIT, April 3—Michigan members of the National Association of Automobile Accessory Jobbers have formed a Michigan auxiliary of the national body for the purpose of handling local problems. It was formed last Wednesday at a meeting called by W. Smalley Daniels, of the New Era Spring & Specialty Co. The officers of the meeting were: Chairman, M. F. Cumings, Cumings Bros., Flint; vice-chairman, A. R. Thompson, Automobile Supply Co., Detroit; secretary, W. B. Dean, Tisch Auto Supply Co., Grand Rapids. The membership committee consists of: E. A. Evans, Automobile Equipment Co., Detroit; F. G. Windsor, Becker Auto Supply Co., Grand Rapids; E. A. Bowman, E. A. Bowman Co., Detroit.

Kissel Donates an Ambulance

MILWAUKEE, April 2—George A. Kissel, president and general manager of the Kissel Motor Car Co., Hartford, Wis., has donated a complete ambulance vehicle unit with full equipment to the Wisconsin branch of the American Red Cross Society.

Holihan Changes Its Name

DETROIT, March 31—The name of the Holihan Mfg. Co. has been changed to Motors Metal Mfg. Co., this action being taken at the annual meeting last week. C. R. Talbot was elected president, other officers elected being, vice-president, H. A. Burnett; secretary, treasurer and

manager, William Christian; directors, Gustavus D. Pope, L. M. Allen, S. E. Ferriss, Morris Friedburg, and the officers. The company is now installed in its new plant and production for 1917 will be doubled.

Saginaw Will Increase Capital

SAGINAW, March 30—The Saginaw Motor Car Co. will increase its capital to \$1,000,000 and elect new officers at its meeting to be held April 10.

Coming!

*You'll use it every day.
April 25 Motor World starts
its national record of used car
prices, revised every week. It
will put a foundation under
your used car business.*

Securities Quotations

	March 31, 1917	Bid	Asked
*Ajax Rubber Co.....	70	73	
*J. I. Case T. M. Co. pfd.....	80	86	
Chalmers Motor Co. com.....	24	30	
*Chandler Motor Car Co.....	101	103	
Chevrolet Motor Co.....	125	130	
Fisher Body Corp. com.....	34	38	
Fisher Body Corp. pfd.....	94	96	
Fisk Rubber Co. com.....	65	75	
Fisk Rubber Co. 1st pfd.....	101	105	
Fisk Rubber Co. 2nd pfd.....	70	100	
Firestone Tire & Rubber Co. com.141¼		143½	
Firestone Tire & Rubber Co. pfd.107¼		109	
*General Motors Co. com.....	119	119½	
*General Motors Co. pfd.....	89¼	90¼	
*B. F. Goodrich Co. com.....	53¾	54¾	
*B. F. Goodrich Co. pfd.....	108¾	112	
Goodyear Tire & Rubber Co. com.247		250	
Goodyear Tire & Rubber Co. pfd.106		107	
Grant Motor Car Corp.....	6	8	
Hupp Motor Car Corp. com.....	4	5	
Hupp Motor Car Corp. pfd.....	80	85	
International Motor Co. com.....	17	17	
International Motor Co. 1st pfd..	70	70	
International Motor Co. 2nd pfd..	30	30	
*Kelly-Springfield Tire Co. com..	62	63	
*Kelly-Springfield Tire Co. 1st pfd	92½	94	
*Lee Rubber & Tire Corp.....	22¼	22¾	
*Maxwell Motor Co., Inc., com...	53¼	53¾	
*Maxwell Motor Co., Inc., 1st pfd.	68	70	
*Maxwell Motor Co., Inc., 2nd pfd.	33¾	34	
Miller Rubber Co. com.....	231	237	
Miller Rubber Co. pfd.....	104¼	106½	
Packard Motor Car Co. com.....	150	160	
Packard Motor Car Co. pfd.....	101	101	
Palge-Detroit Motor Car Co.....	36½	37½	
Peerless Truck & Motor Corp.....	14	17	
Portage Rubber Co. com.....	152	160	
Regal Motor Car Co. pfd.....	25½	25½	
*Reo Motor Car Co.....	34	35	
*Saxon Motor Car Corp.....	55¾	57	
Springfield Body Corp. com.....	70	80	
Springfield Body Corp. pfd.....	110	120	
Standard Motor Construction Co.	12¼	12¾	
*Stewart-Warner Speed. Corp....	83	84	
*Studebaker Corp. com.....	100	100¾	
*Studebaker Corp. pfd.....	102	106	
Swinehart Tire & Rubber Co.....	77	83	
United Motors Corp.....	38½	39	
*U. S. Rubber Co. com.....	58¾	59	
*U. S. Rubber Co., pfd.....	108	109	
*White Motor Co.....	47½	50	
*Willys-Overland Co. com.....	33	33¾	
*Willys-Overland Co. pfd.....	97¾	98	

*At close, March 31, 1917. Listed N. Y. Stock Exchange. †Par value \$10.

Holmes Plans Are Now for 7000 Cars a Year

Gets a Plant in Canton and Now Hopes to Have First Cars Out by January, 1918

CANTON, OHIO, March 31—The Holmes Automobile Co. has taken over the east-end plant of the Republic Stamping & Enameling Co. Henry C. Milligan, president of the Republic Company, said the sale of the plant and the building of additions to the west plant was part of the general improvement plan his company has had in mind for some years.

The taking over of the plant by the Holmes Co., at a figure reported to be \$300,000, will make it possible for the company to start operations several months sooner than was first expected and will give facilities for an output of 7000 cars a year, while the original plans called for an output of 4000.

It was first planned by the Holmes Co., to complete the first car next spring, but by taking over a complete factory building it will be possible to complete the car soon after the first of the year.

The transfer of the property includes 23 acres of land, all buildings complete and the railroad siding. The plant is located on the Pennsylvania railroad. The building is of saw-tooth construction and has a total floor area of 175,000 square feet. Inside of four months the new owners expect to have machinery installed and the plant ready to operate.

Big Piggins Production Coming

RACINE, WIS., March 31—It is reported that the Piggins Bros., Racine, Wis., who have been manufacturing motor trucks on a small scale for several years, are organizing the Racine Motor Truck Co., with a capital stock of \$500,000, to build a large plant and engage in truck and tractor production on a large scale. Ira Miller, Los Angeles, is said to be associated in the enterprise. Further details will be announced as soon as the organization is completed, it is said.

Third Plant for Boone

EAU CLAIRE, WIS., April 2—The Boone Tire & Rubber Co., Sycamore, Ill., and Des Moines, Iowa, has completed arrangements with the Progressive League of Chippewa Falls, Wis., for the establishment of a third plant in that city. Business men of Chippewa Falls raised a guaranty fund of \$28,000 within 10 days' time. This consisted of subscriptions to the amount of 8 per cent cumulative stock in the Boone company. A building will be erected at once and with equipment will represent an investment of approximately \$50,000. The new plant, probably will be ready by June 15 or July 1.

Specifications
of the
Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Turn	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT	6-31x4 25.3 Remy		Stmng	Remy	DP 3 122 32x4	SS					1195	1250	1195	1495	1820		
ALLEN	4-31x5 22.5 Wmha		Stmng	Wmha	C 3 112 32x4	SS					1895	895		1175	1195		1195
AMERICAN SIX	6-3 25 21.0 G & D		Zenith	G & D	3 122 32x4	SS						1285					
AMS-STERLING	4-31x4 15.0 Boech		Stmng	Boech	DP 3 110 30x3	SS					1275	1250	*1250				
ANDERSON	6-31x4 25.4 Wmha		Orn	Wmha	DP 3 120 32x4	SS											
APPERSON	6-31x5 29.4 Remy		Radd	Bijur	DP 3 130 34x4	SS					1750	1090	1750				
8-17	8-31x5 31.2 Remy		Johnson	Bijur	DP 3 130 35x4	SS					2000		2000				
AUBURN	6-39		Radd	Remy	DP 3 120 34x4	SS					1145	1145	1145				1320
6-39	6-31x5 23.4 Remy		Radd	Deleo	DP 3 131 35x4	SS						1153	1535				1735
6-44	6-31x5 23.4 Wmha		Stmng	Deleo	DP 3 131 35x4	SS					3750	3750	4000	4550	4950	5250	
AUSTIN	12-21x5 39.6 Deleo		Stmng	Deleo	D 6 145 34x4	QD					2300	2350	12275				3900
8-60	4-31x4 22.5 Dicie		Zenith	G & D	DP 4 122 32x4	QD											
BIDDLE	4-31x4 25.3 Remy		Stmng	G & D	DP 3 118 32x4	QD											
BOUR-DAVIS	6-31x4 25.3 Remy		Stmng	G & D	DP 3 118 32x4	QD											
17	4-1 25 25.0 Boech		Zenith	U. S. L. C	3 125 34x4	SS					16500						7700
BREWSTER	4-4 25 25.0 Boech		Zenith	U. S. L. C	3 125 34x4	SS											
BRISCOE	4-31x5 16.3 Conn		Mayer	Spidderf C	3 105 30x3	QD					685	685					810
8-24	8-3 23 28.8 Remy		Zenith	Apico	C 3 114 32x3	QD					1045	1045					
8-38	4-31x5 18.9 Remy		Mayer	Apico	C 3 114 32x3	QD					1845	845					
4-38	4-31x5 18.9 Remy		Mayer	Apico	C 3 114 32x3	QD											
BUICK	4-31x4 18.3 Deleo		Marrel	Deleo	C 3 106 31x4	C					640	675					
D-34-35	6-31x4 25.3 Deleo		Marrel	Deleo	C 3 115 34x4	SS					1040	1070					
6-44-47	6-31x4 27.3 Deleo		Marrel	Deleo	DD 3 124 34x4	SS											
E-49	6-31x4 27.3 Deleo		Marrel	Deleo	DD 3 124 34x4	SS											
CADILLAC	6-31x4 31.2 Deleo		Orn	Deleo	D 3 132 37x5	SS					12240		2240	2940	3740	2335	
55	4-31x4 21.0 Conn		Radd	A-Lite	C 3 120 34x4	QD					1190		1190				
CASE	4-31x4 21.0 Conn		Radd	A-Lite	C 3 120 34x4	QD											
CHALMERS	6-31x4 25.4 Remy		Stmng	Wmha	DP 3 122 34x4	SS					1250	1250	1350	1625	1850	2550	
6-30	6-31x4 25.4 Remy		Stmng	Wmha	DP 3 122 34x4	SS					11395		1395	1995	1995	2695	1995
CHANDLER	6-31x5 27.3 Boech		Radd	G & D	D 3 123 34x4	SS					535	550					625
17	4-31x4 21.7 Conn		Zenith	A-Lite	C 3 102 30x3	C					800	800					
4-40	4-31x4 21.7 Conn		Zenith	A-Lite	C 3 102 30x3	SS					1355	1355	1355				
6-72	6-31x4 34.5 Conn		Zenith	A-Lite	C 3 120 34x4	SS											
COLE	8-60		Stmng	Deleo	C 3 127 35x4	SS					1795		1795	2295			
CROW-ELKHART	6-31x4 19.2 Deleo		Stmng	Deleo	C 3 127 35x4	SS											
8-30	8-31x4 39.6 Conn		Carter	Dynaco	D 3 114 31x4	SS					1895	845					985
DANIELS	8-31x5 33.8 Wmha		Zenith	Wmha	D 3 127 34x4	QDR					12900	2900	2900	3900	4000	4000	
DAVIS	6-31x4 21.3 Deleo		Stmng	Deleo	C 3 119 34x4						1295	1295	1295	1695	1795		1995
H & I	6-31x4 29.4 Deleo		Stmng	Deleo	C 3 124 34x4							1595	1595				
DETROIT	6-31x4 25.3 Conn		Ball	A-Lite	D 3 119 32x4	SS					1250	1250					1550
DISPATCH	4-31x5 22.5 Boech		Radd	U. S. L. C	D 4 120 36x4	QD					1135		1310	1400			
DIXIE FLYER	4-31x5 19.9 Conn		Carter	Dynaco	C 3 112 32x4	SS						845	845				
DOBLE	2-7 1st double-acting steam engine. Boiler pressure 600-lbs.																
DODGE BROTHERS	4-31x4 24		Stewart	N. E.	D 3 114 25x4	8					885	885					1000
DORRIS	6-4 25 25.0 Boech		Stmng	Wmha	D 3 106 36x4	8							2475	2549	2549	2975	
1-3-4	4-31x5 18.9 Conn		Carter	Wmha	C 3 105 30x3	QDC					1995	995					215
DOET	4-31x5 18.9 Conn		Carter	Wmha	C 3 105 30x3	QDC											
8																	
LOZIER	4-41x6 28.9 Boech		Stewart	G & D	D 4 120 36x4	SS							1695				
84	6-31x6 36.0 Elman		Radd	G & D	D 3 132 36x4	SS							2775				
LUVERNE	6-31x5 33.7 Boech		Schebler	Boech	DD 132 35x4	SS							1500				
17	6-31x5 23.4 Remy		Radd	Remy	DD 3 115 34x4	SS					11285	1285	1735				
4	6-31x5 23.4 Remy		Radd	Remy	DD 3 115 34x4	SS											
MADISON	4-31x4 15.6 A. Kent		Zenith	Diace	DD 3 105 36x3	SS					695						
MAHOM	4-31x4 15.6 A. Kent		Zenith	Diace	DD 3 105 36x3	SS											
A	8-3 25 28.8 A. Kent		R & M	DP 3 125 32x4							11500	1650	1650				
MAJESTIC	8-31x5 33.8 A. Kent		R & M	DP 3 135 35x5							13000	3000	3000				
A	8-31x5 33.8 A. Kent		R & M	DP 3 135 35x5													
MARION HANDLEY	6-40		Stmng	Wmha	DD 3 120 32x4	SS					11275		1275				
6-40	6-31x5 23.4 Wmha		Stmng	Wmha	DD 3 125 35x4	SS					11575		1575				
6-60	6-31x5 29.4 Wmha		Stmng	Wmha	DD 3 125 35x4	SS					123100	3050	3100	4100	4550		
MARMON	4-31x4 21 A. Kent		K-D	Simms	C 3 103 30x3	C					620	635					865
MAXWELL	6-41x6 48.6 Boech		Stmng	Wmha	DP 3 126 35x5	QD					3750	3800	3400				
25	4-31x4 21 A. Kent		K-D	Simms	C 3 103 30x3	C											
MCPARAN	6-41x6 48.6 Boech		Stmng	Wmha	DP 3 126 35x5	QD					1425	1425	1460	1995	2175	2765	300x
MERCER	4-31x4 22.5 Boech		Zenith	U. S. L.	DD 4 132 34x4	QDC					13500	*3500					
22-73	4-31x4 22.5 Boech		Zenith	U. S. L.	DD 4 115 32x4	QDC					3400	Raceabout	3250				
METZ	4-31x4 24		Dirie	A. W. T.	G & D	F 108 32x3	C				600	600					
25	4-31x4 24		Dirie	A. W. T.	G & D	F 108 32x3	C										
MITCHELL	6-31x5 25.4 Conn		Radd	Spidderf C	3 120 32x4	SS					1150	1150					300x
D-40	6-31x5 25.4 Conn		Radd	Spidderf C	3 120 32x4	SS					11425	1425	1460	1995	2175	2765	300x
C-42	6-31x5 25.4 Conn		Radd	Spidderf C	3 120 32x4	SS											
MOLINE-KNIGHT	4-31x5 22.5 Conn		Schebler	A-Lite	C 3 118 34x4	SS					11495	1495					
G	4-4 26 25.8 Conn		Schebler	A-Lite	C 3 122 35x4	SS					11840		1840	2400	2440		
MONITOR	4-31x4 22.5 Heime		Schebler	Heime	D 3 108 32x3	SS					895	895					
N.O.	4-31x4 22.5 Heime		Schebler	Heime	D 3 108 32x3	SS					1095	1095					
MONROE	4-31x4 14.4 Conn		Zenith	A-Lite	DD 3 96 30x3	DC					545	565					945
M-3	4-31x4 16.9 Conn		Zenith	A-Lite	DD 3 115 32x4	DC											
M-4	4-31x4 16.9 Conn		Zenith	A-Lite	DD 3 115 32x4	DC											
MOON	6-31x4 25.3 Deleo		Radd	Deleo	DD 3 118 32x4	SS					11295	1295					1495
6-43	6-31x4 25.3 Deleo		Radd	Deleo	DD 3 118 32x4	SS					11600		1600	1990	2350		
6-66	6-31x4 25.3 Deleo		Radd	Deleo	DD 3 118 32x4	SS											
MURRAY	8-31x5 33.8 Dicie		Zenith	Wmha	DP 3 128 34x4						2500		2500				Chassis 2000
70-T	6-31x5 29.4 Dicie		Radd	Wmha	C 3 128 34x4	QDR					11850	1850	1850	2500	2450		
NATIONAL	12-21x5 39.6 Conn		Radd	Bijur	C 3 128 34x4	QDR					12250	2250	2250	2900	2850		
Fix Twelve	6-31x4 15.6 Boech		Zenith	U. S. L.	D 3 104 32x4	SS											
NELSON	4-31x4 15.6 Boech		Zenith	U. S. L.	D 3 104 32x4	SS											
OAKLAND	6-31x4 19.0 Deleo		Marrel	Deleo	C 3 112 32x4	SS					1375	875					1955
24	6-31x4 19.0 Deleo		Marrel	Deleo	C 3 112 32x4	SS											
50	6-31x4 39.2 Deleo		Stmng	Deleo	C 3 127 34x4	SS											
OLDEMOMBLE	6-31x4 26.4 Deleo		Johnson	Deleo	C 3 120 32x4	SS					1295	1295	1367	1775	1850	2675	1775
47	6-31x4 26.4 Deleo		Johnson	Deleo	C 3 120 32x4	SS					11095	1095					
OLDEMOMBLE	6-31x4 27.2 Conn		Thun	A-Lite	C 3 112 32x4	SS					1335	850					1450
83B4	6-31x4 25.3 Conn		Thun	A-Lite	C 3 116 32x4	SS					1370	985					1585
88B4	6-31x																

White Earns 23 Per Cent

CLEVELAND, March 31—The White Motor Co. earned 23.13 per cent on its capital stock in the past year. The first annual report of the White Motor Co. for the year ended Dec. 31, 1916, shows net profits amounting to \$4,441,041 from which \$740,000 has been set aside to reduce value of inventory to value based on prices current to Dec. 31, 1915. This leaves \$3,701,041, equivalent to 23.13 per cent on \$16,000,000 capital stock outstanding. Current assets, as of Dec. 31, 1916, were \$11,674,873, and current liabilities were \$1,579,267, leaving a net working capital of \$10,095,606. Windsor T. White, in his remarks to the stockholders, pointed out that the capital assets of the company and its subsidiaries have been increased during the year to the extent of \$616,262, the principal items being purchase of additional land for the factory, erection of a new factory building affording approximately 111,000 sq. ft. additional manufacturing space, payments on the new sales building in New York City, and the additions of machinery and equipment.

Goodyear Makes Some Changes

AKRON, April 2—The Goodyear Tire & Rubber Co. has made a number of changes among its branch managers. E. B. Sigerson, for several years Buffalo manager, has been given special work at the Akron plant. C. M. Clopp, special motor truck tire representative in Syracuse, takes Sagerson's place in Buffalo. J. E. Taylor, becomes manager of the Charlotte, N. C., branch. M. Orr, former

manager at Charlotte, takes the place left vacant by Clopp in Syracuse. W. C. Blake, for six years manager of Syracuse, has been made manager of the New York City branch. He succeeds P. W. Smith, who has resigned.

HE TALKS LITHUANIAN

THE Heublein Garage Co. in Hartford, Conn., possesses a salesman of more than ordinary ability. He can converse fluently in Lithuanian and Polish. W. T. Bidwell, who devotes his time to the sale of the Liberty six, is the linguist. During the past month he has been working on Lithuanian and Polish prospects, and because of his ability to speak these two languages has a decided advantage over his competitors. Bidwell is the son of an East Hartford tobacco grower, and because he came in contact with his father's foreign help learned the languages mentioned. Bidwell is one of the most aggressive salesmen in the city.

To Re-organize Lozier

NEW YORK, March 29—A complete re-organization is contemplated by the Lozier Motor Co., Detroit. It is planned to organize the company under Michigan laws, adding new capital and blood. Plans are now under way for the establishment of dealers throughout the country, a change from the present factory branch arrangement. Several changes are contemplated in the construction of the car; for example, the chassis is to be lowered 1½ in. The company plans entering the custom body field, having in view at pres-

ent six or seven bodies for the one chassis.

Darling Cars From Dayton

DAYTON, OHIO, March 31—The Darling Motor Co. has acquired the plant of the Wright-Martin Aeroplane Co. and will use it to produce cars. The car is designed by James Guthrie and will include a 3½ x 5¼ model 7-N Continental six motor, Timken axles with spiral bevel drive, Borg and Beck clutch, Stromberg carburetor, Bijur starting and lighting, Atwater-Kent ignition, demountable wire wheels. The wheelbase will be 130 in. and the equipment will include a Kellogg tire pump, Stewart vacuum feed, Conaphore lamp equipment and Boyce Moto-Meter.

Foster Heads Hydraulic Steel

CLEVELAND, March 30—A re-organization of the officers of the Hydraulic Pressed Steel Co. has resulted in the election of J. H. Foster, former vice-president and general manager, president; W. Ellenberger, former president, chairman of board of directors; H. H. McIntosh, Jr., former treasurer, vice-president; Ben Bole remained secretary; H. B. Bole, former factory manager, general manager; R. D. Mock, former assistant treasurer and assistant to the secretary is now treasurer and assistant secretary to the president. Foster has been the active individual of the concern which accounts for his new position. It is believed that the 8 per cent dividend on the common stock is likely to be continued after payment of the 100 per cent stock dividend which has already been declared.

Coming—THE SHOW CALENDAR—Events

Atlantic City, N. J.	Garden Pier, S. W. Megill, Mgr.	Mar. 31-Apr. 14	Chicago, Ill.	Championship	June 9
Milwaukee, Wis.	Spring Show, Milwaukee Automobile Dealers.	April	Kansas City	Speedway (dirt)	June 16
Providence, R. I.	Rhode Island Automobile Dealers' Assn., State Armory.	April 2-7	Cincinnati, O.	Race	June 23
San Francisco, Cal.	Commercial Car Exposition, Auditorium, I. R. Gates, Mgr.	April 3-7	Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Stockton, Cal.	Second Annual San Joaquin Auto Trades Assn.; Mgr.: Samuel S. Cohn.	April 4-7	Omaha, Neb.	Championship	July 4
Calumet, Mich.	Upper Peninsula Show Assn.	April 11-14	Tacoma, Wash.	Championship	July 4
Milwaukee, Wis.	First Annual Used Car, Milwaukee Automobile Dealers, Inc., Auditorium; Bart J. Ruddle, Mgr.	Apr. 20-26	Visalia, Cal.	Road Race	July 4
Spokane, Wash.	Interstate Fair	Sept. 2-9	Spokane	Track Race, R. A. Hiller, Mgr.	July 4
Milwaukee, Wis.	Third Annual Fall State Fair Park, West Allis.	Sept. 9-15	Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28	Des Moines, Ia.	Championship	July 14
Washington, D. C.	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18	Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
General and Racing			Intercity Reliability	American Auto. Assn.	July 17-19
Los Angeles, Cal.	Los Angeles to Salt Lake City, Utah.	April	Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10	Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
New York, N. Y.	Metropolitan Race, Sheephead Bay.	May 19	Kansas City, Mo.	Race	Aug. 4
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30	Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30	Elgin, Ill.	Road Race	Aug. 18
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6	Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
			Cincinnati, O.	Championship	Sept. 3
			Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
			Pike's Peak, Col.	Hill Climb.	Sept. 8
			Providence, R. I.	Championship	Sept. 15
			Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
			Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
			New York	Speedway Races	Sept. 29
			New York, N. Y.	Championship	Sept. 29
			Uniontown, Pa.	Speedway Races	Sept. 30
			Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
			Kansas City, Mo.	Championship	Oct. 6
			Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
			Chicago, Ill.	Race	Oct. 13
			Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13
			New York, N. Y.	Race	Oct. 27

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 2

New York, April 11, 1917

Ten cents a copy
Two dollars a year

U.S. Ball Bearings



Stewart PRODUCTS



**Quick
Sales!**

**Quick
Profits!**

That is what dealers get with Stewart Products. A rapid turnover of your accessory stock means quick profits. This means bigger profits for you.

It isn't so much what profit you make on an article as it is the quantity you can sell. For example, it is better to sell four signals of a known brand, in a certain period, at a profit of one dollar each, than to sell one unknown signal at a profit of one dollar and fifty cents.

To be profitable your accessory department must be stocked with quick sellers—articles that are well known, widely advertised and easy to sell.

Stewart Products are the fastest-selling and easiest to sell of all automobile necessities. That is why they are so profitable for dealers to carry.

Stewart Products are backed up by an enormous advertising campaign—bigger than any other in the field.

Stewart Products are more than half sold when placed on your shelves. A big demand exists. You don't have to spend a lot of time trying to move Stewart Products. Stewart advertising and Stewart prestige does it for you.

You can't afford to not sell Stewart Products. Your business is not complete without them.

It is a line that is progressing—advancing by leaps and bounds.

Fast sellers—business builders for you—are being added to the line continually.

Stewart-Warner Speedometer Corporation

Chicago, U. S. A.



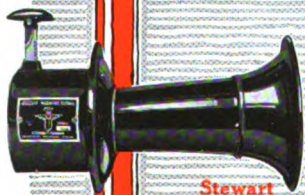
**Stewart
Speedometer
\$25**



**Warner
Auto-Meter
\$50**



**Stewart V-Ray
Spark Plug
\$1**



**Stewart
Hand Operated
Warning Signal
\$3.50**



**Stewart
Vacuum System
\$10**



**Stewart
Motor Driven
Warning Signals
\$6**



**Stewart
Tire Pump
\$12**



**Stewart Instrument
Board for Ford Cars
Complete
\$11.25**

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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"NORMA" BALL BEARINGS

(Patented)

If the bearings of your ignition apparatus or of your lighting generator fail, where is the advantage of an engine of surpassing quality or of a car of surpassing design? As determining the service capacity of your car, can any detail—how small soever—be considered of minor importance?

The almost universal use of "NORMA" Bearings in the high-grade magnetos and lighting generators used on cars of the better class can have but one explanation, viz., the proved dependability of "NORMA" Bearings in this exacting high-speed service. You may safely take the presence of "NORMA" Bearings as a mark of quality in car and accessories.

Be Sure—See That
Your Electrical
Accessories Are
"NORMA"
Equipped

THE NORMA COMPANY OF AMERICA

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NEW YORK

Ball, Roller, Thrust, Combination Bearings



When writing advertisers please mention Motor World—It identifies you

"America's Greatest 'Light Six'"
HAYNES
"America's Greatest 'Light Twelve'"

87 dealers who sold 3900 Haynes
 "Light Sixes" in 1916 report:

That the Haynes "Light Sixes" in their territories
 are averaging—

- 14½ to 18 miles per gallon of present low-grade gasoline.
- 6,956 to 7,803 miles on tires.
- 199 to 291 miles per QUART of cylinder oil.

**A Dealer's
 Challenge!**

"Side by side with any other car in its class the Haynes is the best built, best equipped, most accessible. With our Model 36 we can outdemonstrate any car in our territory. We have issued a challenge on this and are actually doing it."

—So says a dealer who sold 70 Haynes cars in 1916 in a city of 170,000 population.

In these days of \$4 a bushel potatoes and 50c eggs, the dealer with the car that he CAN PROVE has the LOWEST UPKEEP is the dealer who can buy real leather shoes for his kiddies.

The big Haynes advertising campaign is getting thousands of dollars BIGGER each month.

Write—or better still, wire!

"Light Six"—Open Cars

Five-passenger Touring Car	\$1595
Four-passenger Roadster	1725
Seven-passenger Touring Car	1725

Closed Cars

Five-Passenger Sedan	\$2260
Seven-Passenger Sedan	2390

Wire Wheels Extra F. O. B. Kokomo

1917 output 100% greater than for 1916.

This means cars for dealers in territory now unoccupied. You get cars when you want them.

"Light Twelve"—Open Cars

Five-passenger Touring Car	\$2095
Four-passenger Roadster	2225
Seven-passenger Touring Car	2225

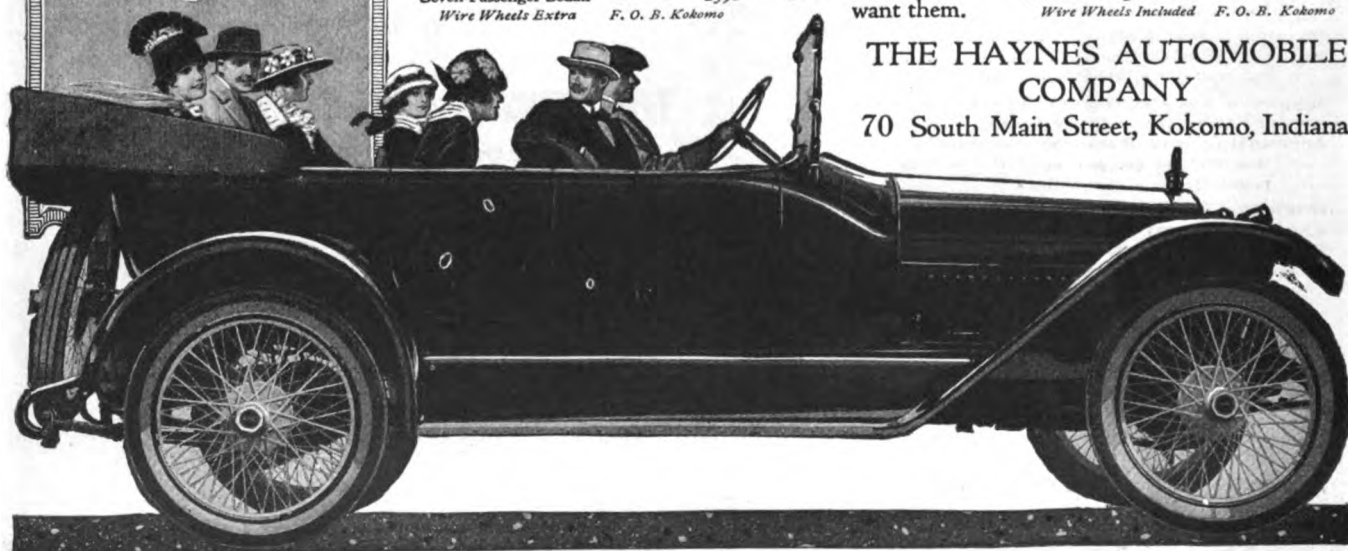
Closed Cars

Five-Passenger Sedan	\$2760
Seven-Passenger Sedan	2890

Wire Wheels Included F. O. B. Kokomo

**THE HAYNES AUTOMOBILE
 COMPANY**

70 South Main Street, Kokomo, Indiana



When writing advertisers please mention Motor World—It identifies you

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, April 11, 1917

No. 2



CAR OWNER—"Try my glass."

DEALER—"I can see perfectly, thank you."

Motor World
Used Car Price Record
See Page 8

Here's How One Dealer Solved the Used Car Problem

HE is the Cadillac dealer in Newark, N. J., a city of 400,000 people, about 10 miles from downtown New York. His plan is sane, sensible and practical and may save thousands of dollars for any other dealer who adopts it in whole or in part. And, as Motor World said on this page last week, the fundamental principle of the plan's success is that the trading allowances are sane and **BASED UPON THE RESALE PRICE.**

A USED Car Plan that is successful is operated by the Newark branch of the Cadillac Motor Car Co. of New York. The cars are handled by a Used Car Department with a separate salesroom and manager. The plan is successful because *the allowances on cars are based upon the resale price.* No foolishly high allowances are made. When a new car is sold, the dealer makes money on it.

This is the problem encountered by this Cadillac dealer: About 40 per cent of new car sales have proposed trades attached to them. Unless the dealer wishes to pass up entirely this 40 per cent of business he must provide for handling this used car business. Unless he wishes to lose money on his trades he must have some sane plan of operation. Wherefore the dealer worked out a plan that is helping him make money.

This Is The Plan

1. Prospect appears and wishes to have his car taken in trade.

2. Used car manager is summoned.

3. Used car manager tests car on the street for general condition and makes a thorough examination.

4. Used car manager estimates what an overhaul will cost. The overhaul system is explained further on in this story.

5. Used car manager tells the prospect the car will be overhauled and sold at the best price possible.

6. Prospect generally buys a new car and leaves his old car to be sold, but before his car will be taken the owner must write a letter, setting down in black and white the maximum and minimum amounts he will accept.

7. Used car is turned over to the shop for overhaul.

8. Car is carefully tested by a shop expert.

9. Tires, lamps and other parts are removed.

10. Car is overhauled mechanically.

11. Car goes to the paint shop. It is washed three times to harden the varnish after the painting.

12. Car goes back to shop.

13. While the car is going through the shop the nicked parts have been sent outside to a lamp man and renicked.

14. All the parts are replaced on the car. New tires are added. In case the car is a 1915 or 1916 Cadillac Eight, many 1917 parts have been added while the car was being overhauled.

15. Shop tester tests car.

16. Used car manager tests car.

17. In case the car is not satisfactory, it goes back into the shop, but if it is accepted by the used car manager it is offered for sale.

18. When the car is sold its full sale price, minus the cost of the overhaul, is turned over to the owner.

6a. In case the owner does not want to leave his car to be resold, the used car manager will offer to

buy the car if it is a Cadillac, but this offer to purchase is BASED UPON THE RESALE PRICE. No chances are taken. While the department is not run for profit it is run for the dealer's benefit.

7a. In case the car is not a Cadillac it is not given such careful attention. Many cars bearing other nameplates are sold "as is," but in all cases great care is taken to tell the buyer the WHOLE TRUTH.

More About The Plan

The outline above explains the steps of the plan, but a little further explanation may be enlightening.

The plan has been in operation since last August, and 265 used cars have been disposed of since that date, nearly eight months—more than a car a day.

The department does not as yet add any percentage for overhead. No attempt is made to make it pay a profit. It is operated merely as an outlet for traded cars.

A car will not be taken in trade on a used car, because this would make it necessary to handle three cars to make one sale.

Most attention is paid to Cadillac Eights. These are always put out in tip-top condition and appearance. The cost of fixing them up runs from \$100 to \$200, but mostly nearer \$100 than \$200.

On the eights there is added new water hose, a 1917 carbureter, a new oiling system, and several other 1917 parts that are improvements over the 1916 car. This makes a used eight an excellent buy.

The dealer believes every used eight that "goes out right" is a good advertisement.

For an overhauled and refinished 1915 car the average resale price is \$1,000. On a 1916 it is \$1,400.

Models of 1912-13-14 are sold with a partial overhaul, and the FACTS ARE TOLD TO THE BUYER. Misrepresentation is tabooed.

A 1912 will bring an average of \$250, a 1913 \$350 and a 1914 \$400-\$450.

Cars for sale are tagged with the model, price and other data. It is thus possible for a prospective used car buyer to walk through the salesroom and know the price on any car. No deviation is made from these prices. However, if a car fails to move it is marked down slightly after a reasonable length of time.

Overhauled cars are painted different colors, rendering them attractive in appearance.

The used car salesroom is about 50 x 50 feet, is directly back of the new car salesroom, is connected with the front salesroom by a neatly labeled door, and is furnished with rugs, palms and attractive lighting fixtures.

Ninety per cent of the used cars are sold without the buyer ever hearing the motor run.

The word "guarantee" is never used, because it has been

abused and doesn't mean much to the average car buyer.

The department is managed by Art Schlobohm, formerly a Ford man. He has a secretary, two mechanics and a helper. These men keep the cars in first-class condition mechanically, and keep the bodies polished and dustless, and the motors painted.

Cars that the dealer would not care to resell because of their deplorably poor condition are taken in at a low price and sold to a junk man to be broken up.

The manager of the department has a pleasant personality and maintains the same atmosphere of agreeableness throughout the department. In no way does the department savor of junkiness or secondhandness.

The dealer believes a used car department should and can build a reputation the same as does a new car department.

A prospect sat at the used car manager's desk one day and said: "I am inclined to buy, but I don't know that all you have told me is so. This is the first dealing I have had with you."

As Schlobohm was about to answer, the door opened, and in walked a farmer from the mountains of New Jersey with a great bunch of celery in his arms. He had bought a used car of Schlobohm not long ago.

"How's the car?" asked Schlobohm.

"I'm tickled to death with it!" responded the farmer. "That's why I'm bringing you in all this celery—just to show you what a fine fellow I think you are." And then the farmer enthused for fifteen minutes on the subject. When Schlobohm came back from saying good-by at the door, the doubter was writing a check.

The only solution of the used car problem, aside from not trading at all, is to make allowances based upon what the dealer is sure he can get for the car on resale. Imaginary resale values will let a dealer figure himself into millionairessdom to-day and bankruptcy to-morrow.

Maybe you say: "They can do that in Newark, but it can't be done in my town!" To which we answer: If you start out by believing it can't be done, you have chosen the best way of failing at ANYTHING you start.

What this trade needs right now is a little stiffening of backbones and a determination not to let car buyers put over some of the raw sales of used cars they have put over in the past. For that's what the car buyers have smilingly been doing—selling used cars to new car dealers.

NEXT WEEK

MOTOR WORLD next week will describe another plan that is used by a successful dealer. Study it carefully. Get a plan working in YOUR business. This summer holds wonderful profits in store for the dealers who stave off this used-car bugaboo and operate in a businesslike way.

MOTOR WORLD

Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

MOTOR WORLD Used Car Price Record is presented on this and the following pages. Hereafter this tabulation will appear each week in MOTOR WORLD.

This information is collected by MOTOR WORLD territorial representatives. It comes from the dealers who handle 25 large-production makes, thereby covering the bulk of the business.

The need for these data is made plain by the business axiom that allowances and appraisals on used cars must be based on resale prices.

This principle was first given prominence three years ago when the Chicago Automobile Trade Association, the originator of the idea of supplying dealers with definite data on used car prices, began distribution of its National Used Car Market Report, which has been issued regularly ever since.

MOTOR WORLD acknowledges the inspiration of the Chicago Automobile Trade Association, and is glad to take up and further its idea.

Furthermore, MOTOR WORLD is glad to give credit to F. J. Bennett of Robertson & Bennett, Keene, N. H., who first suggested the desirability and the advisability of publishing such data every week. It is in this weekly service that MOTOR WORLD hopes to supplement the good work done by the Chicago association in its quarterly reports.

It was during the recent Boston show, March 3-10, that Mr. Bennett brought up the subject in conversation with a MOTOR WORLD editorial representative.

Weekly Report Needed

He pointed out the need for data on the current sale prices of used cars by dealers in the principal trade centers, stating that frequently these dealers have nothing but guesswork upon which to base allowances and appraisals. He urged the need of a weekly service because of the constant changes in the price of used cars due to increasing prices of new cars, to changes due to seasons, and to changes due to locality.

This need was still earlier brought to the attention of MOTOR WORLD through a letter addressed to Mr. H. M. Swetland, president of The Class Journal Co., from F. E. Moskovics, commercial manager for Nordyke & Marmon, Indianapolis.

The letter was dated March 7 and was written following

an extensive tour of the West, including the Pacific Coast, made in company with General Manager Alfred Reeves of the National Automobile Chamber of Commerce, whose purpose was a thorough investigation of trade conditions among dealers. In the letter Mr. Moskovics says in part:

"In each city we heard a very loud demand for some sort of a bureau of exchange with ideas of used car values. In other words, it is my opinion that if you could start a department in MOTOR WORLD which would let the dealer know the value of the various used cars in the various cities in the country (something on the style of the Chicago second-hand exchange, but a little more intimate) it would be practically invaluable to these dealers. They would study it as the Mohammedan does the Koran."

Again, following his Western tour, Mr. Reeves wrote to MOTOR WORLD:

What Mr. Reeves Says

"I am convinced that a paper such as yours, with its influence among dealers, could not undertake a better work than to investigate and furnish information on the used car situation. . . . Dealers deceive themselves in allowing higher prices than can be obtained for used cars in the regular market. . . . The real problem lies in the lack of knowledge which the average dealer shows as to the value of used cars."

Subsequently, MOTOR WORLD has thoroughly investigated this situation by personal calls on dealers in a large number of sections and through the mail.

The overwhelming sentiment favoring the weekly publication of current resale prices, and the purpose of MOTOR WORLD to constantly increase its service to its readers, has brought the decision to incorporate the Used Car Price Record as a regular feature of MOTOR WORLD.

This record is designed to be a record and a reference. It is not expected that dealers will be guided entirely by these prices in making allowances and appraisals any more than they are guided entirely by any other report. The prices are a record of sales during the previous week, and hence furnish a valuable reference.

The compilation of these data requires the co-operation of dealers, and MOTOR WORLD solicits their help. With such co-operation the Used Car Price Record will grow and expand. Its value is in direct proportion to its completeness, its reliability, and to the extent it is used as a reference.

THE figures in the tables are the prices brought by used cars sold during the past week. Most sales are quoted "As is." Where an asterisk (*) follows the price, it signifies the car has been overhauled, or partly overhauled, and otherwise placed in first-class salable condition. Where more than one sale of a particular model has been reported, the prices have been averaged.

Albany

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
BUICK—						
.....	1916	.....	.....	.....	750	.....
.....	1916	.....	800	.....	.....	.....
CADILLAC—						
53	1916	.....	1100	.....	.....	.....
.....	1915	.....	1150	.....	.....	.....
.....	1913	.....	600	.....	.....	.....
.....	1912	.....	500	.....	.....	.....
DORT—						
.....	1916	450	.....	.....	.....	.....
HUPMOBILE—						
.....	1916	885	.....	850	.....	.....
.....	1915	.....	600	.....	.....	.....
HUDSON—						
.....	1915	.....	825	.....	.....	.....
MAXWELL—						
25	1916	450	.....	.....	.....	.....
.....	1915	360	.....	.....	.....	.....
OLDSMOBILE—						
.....	1916	750	.....	.....	.....	.....
44	1915	700	.....	.....	.....	.....
PACKARD—						
I-25	1916	.....	2300	.....	.....	.....
STUDEBAKER—						
Six	1916	.....	700	.....	.....	.....
Four	1916	.....	550	.....	.....	.....

Baltimore

BUICK—						
.....	1914	450	.....	.....	.....	.....
CHALMERS						
6-30	1916	800	.....	.....	.....	.....
FORD—						
.....	1916	275	.....	.....	.....	.....
.....	1914	250	.....	.....	.....	.....
.....	1913	400	.....	.....	.....	.....
.....	1912	125	.....	.....	.....	.....
MAXWELL—						
.....	1916	350	.....	.....	.....	.....
.....	1912	.....	.....	325	.....	.....
DODGE—						
.....	1916	550	.....	.....	.....	.....
HUDSON—						
.....	1914	.....	.....	550	.....	.....
PACKARD—						
138	1914	840	.....	.....	.....	.....
SCRIPPS-BOOTH—						
.....	1915	.....	.....	275	.....	.....
STUDEBAKER—						
17-6	1916	.....	850	.....	.....	.....
17-4	1916	.....	650	.....	.....	.....

Boston

APPERSON—						
.....	1915	700	750	.....	.....	.....
.....	1916	900	1000	.....	.....	1000
BRISCOE—						
B	1915	350	.....	.....	350	.....
BUICK—						
D44	1916	775	.....	750	.....	.....
D54	1916	.....	1000	900	.....	.....
C24	1915	500	.....	450	.....	.....
C36	1915	525	.....	500	.....	.....
C54	1915	.....	750	700	.....	.....
B24	1914	350	.....	300	.....	.....
B36	1914	400	.....	350	.....	.....
B55	1914	475	.....	.....	.....	.....
CHALMERS—						
6-30	1916	850	.....	.....	.....	.....
24	1914	450	450	.....	.....	.....
CHEVROLET—						
H	1916	475	.....	375	.....	.....
490	1915	375	.....	350	.....	.....
H2	1914	.....	.....	285	.....	.....
DODGE—						
.....	1916	575	.....	575	.....	.....
.....	1917	725	.....	.....	.....	.....
DORT—						
5A	1916	500	.....	.....	.....	.....
5	1915	400	.....	.....	.....	.....
FORD—						
T	1916	225	.....	200	.....	.....
T	1915	185	.....	160	.....	.....
T	1914	145	.....	125	.....	.....
T	1913	125	.....	100	.....	.....
FRANKLIN—						
8	1916	1400	.....	.....	.....	.....
GRANT—						
T	1916	650	.....	.....	635	.....
T	1915	437	.....	.....	.....	.....
HAYNES—						
36	1916	1000	.....	.....	.....	.....
33	1915	.....	900	.....	.....	.....
30	1915	850	.....	.....	.....	.....

BOSTON—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
HUPMOBILE—						
N	1916	850	.....	.....	.....	.....
K	1915	600	.....	.....	.....	.....
20	1912	.....	.....	.....	125	.....
KING—						
E	.....	.....	1100	1100	.....	.....
D	.....	750	.....	750	.....	.....
C	.....	450	.....	450	.....	.....
B	.....	250	.....	250	.....	.....
MAXWELL—						
25	1916	400	.....	450	.....	.....
25	1915	300	.....	300	.....	.....
25	1914	200	.....	200	.....	.....
25	1917	550	.....	550	.....	.....
MITCHELL—						
C42	1916	900	900	.....	900	.....
B645	1915	.....	.....	800	.....	.....
OLDSMOBILE						
8	1916	800	.....	.....	.....	.....
43	1916	.....	.....	.....	.....	700
OVERLAND—						
83T	1916	475	.....	.....	800	.....
86	1916	.....	800	.....	.....	.....
75	1916	475	.....	.....	450	.....
82T	1915	.....	625	.....	.....	.....
81	1915	475	.....	425	.....	.....
79	1914	325	.....	.....	.....	.....
69	1913	275	.....	.....	.....	.....
54	1911	200	.....	.....	.....	.....
REO—						
M	1916	.....	950	.....	.....	.....
R	1916	675	.....	.....	.....	.....
R	1915	525	.....	.....	.....	.....
R	1914	450	.....	.....	.....	.....
SAXON—						
S2	1916	*650	.....	.....	.....	.....
S2	1916	600	.....	.....	.....	.....
A	1914	.....	.....	185	.....	.....
STUDEBAKER—						
17-6	1916	.....	825	.....	850	.....
17-4	1916	.....	650	.....	.....	.....
6	1915	.....	600	.....	500	.....
WILLYS-KNIGHT—						
84T	1916	800	.....	.....	.....	.....

Brooklyn, N. Y.

BUICK—						
D45	1916	725	.....	.....	.....	.....
C37	1915	500	.....	.....	.....	.....
D65	1915	*800	.....	.....	.....	.....
BRISCOE—						
4-38	1916	467	.....	.....	.....	.....
4-25	1915	250	.....	275	.....	.....
CADILLAC—						
.....	1916	.....	*1350	.....	.....	.....
.....	1915	.....	*1000	.....	.....	.....
.....	1914	.....	525	.....	.....	.....
CHALMERS—						
35A	1916	675	750	.....	.....	.....
26	1915	450	.....	.....	.....	.....
32	1915	550	.....	.....	.....	.....
DODGE—						
.....	1916	600	.....	.....	.....	.....
.....	1915	510	.....	.....	.....	.....
DORT—						
.....	1916	350	.....	.....	.....	.....
FRANKLIN—						
.....	1916	1300	.....	.....	.....	.....
.....	1915	950	.....	.....	.....	.....
.....	1914	650	.....	.....	.....	.....
GRANT—						
6	1916	500	.....	.....	.....	.....
HAYNES—						
.....	1916	1000	.....	.....	.....	.....
.....	1916	650	650	.....	.....	.....
.....	1914	400	400	.....	.....	.....
HUPMOBILE—						
M	1916	*800	*875	*800	.....	.....
K	1915	*525	.....	*500	.....	.....
H	1914	*475	.....	*475	.....	.....
JEFFERY—						
4	1916	500	.....	.....	.....	.....
6	1916	650	.....	.....	.....	.....
4	1915	325	.....	.....	.....	.....
MAXWELL—						
.....	1916	300	.....	.....	.....	.....
.....	1915	250	.....	.....	.....	.....
MITCHELL—						
.....	1916	650	650	.....	.....	.....
.....	1915	500	.....	.....	.....	.....
OAKLAND—						
6	1916	550	.....	.....	.....	.....
8	1916	1000	.....	.....	.....	.....
4	1916	600	.....	.....	.....	.....
4	1915	500	.....	.....	.....	.....
OLDSMOBILE—						
8	1916	800	.....	800	.....	.....
4	1916	600	.....	.....	.....	.....
4	1915	412	.....	.....	.....	.....

BROOKLYN—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
REO—						
4	1916	600	.....	600	.....	.....
6	1916	.....	700	.....	.....	.....
6	1915	550	.....	.....	.....	.....
4	1915	437	.....	475	.....	.....
.....	1914	325	.....	325	.....	.....
.....	1913	150	.....	150	.....	.....
.....	1912	100	.....	.....	.....	.....
SAXON—						
4	1916	.....	.....	275	.....	.....
6	1916	450	.....	.....	.....	.....
6	1915	375	.....	.....	.....	.....
4	1915	.....	.....	175	.....	.....
STUDEBAKER—						
17-6	1916	.....	525	.....	.....	.....
17-4	1916	.....	500	.....	.....	.....
6	1915	.....	450	.....	.....	.....
4	1915	.....	350	.....	.....	.....

DENVER—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
CADILLAC—						
55	1917	2100				
53	1916	1600				
51	1915	1300				
....	1914	750				
....	1913		650			
....	1912	500				
....	1911	250				
CHEVROLET—						
H2	1916	550				
490	1916	437				
DODGE—						
....	1916	625				
....	1916	775**				
....	1915	600				
FORD—						
....	1917	367				
....	1916	325				
....	1915	312				
....	1914	267				
....	1913	225				
....	1912	215				
GRANT—						
....	1916	587				
HAYNES—						
34	1916	1185				
HUPMOBILE—						
....	1913	340				
JEFFERY—						
4-62	1916	700				
4	1915	475				
6	1915	650				
MAXWELL—						
....	1916	475				
....	1915	365				
....	1914	300				
OAKLAND—						
32B	1916	637				
OLDSMOBILE—						
44	1916	950				
43	1915		825			
PAIGE—						
Fltwd	1916	975				
Glnwd	1913	400				
REO—						
4	1915	500				
4	1913	200				
SAXON—						
S2	1916	575				
STUDEBAKER—						
5	1917	700		700		
17-6	1917		950			
6	1916		675			
6	1915	550				
4	1915	500				
OVERLAND—						
82A	1916	400		425		
86	1916		750			
80	1915		450	350		
82	1915	550				
75B	1917	525		500		

Detroit

ABBOTT-DETROIT—						
....	1913	185				
BRISCOE—						
4	1917	550			550	
8	1916	650		650		
4	1916	450		450		
4	1915	300		300		
BUICK—						
D44	1917	775		775		
SS	1916	700		700		
BS	1916	900		900		
SSSS	1915	550		550		
BS	1915	650		650		
4	1914	325				
6	1914	450				
CADILLAC—						
....	1917	1600				
....	1916	1100				
....	1915	850				
....	1914	500				
....	1913	450				
CHALMERS—						
35B	1917		750			
35A	1917	600				
32A	1916	500		700		
6-25	1916	750				
6-40	1916		600			
6	1915		850			
CHEVROLET—						
H2	1916	425				
H2	1915	350				
DODGE—						
....	1917	600		600		
....	1916	500		200		
....	1915	425		400		
DORT—						
....	1917		625			
....	1916	475				
HAYNES—						
....	1916	900	1000			
....	1915	600	700			

DETROIT—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
HUDSON—						
SS	1916	1200*			1200*	
SS	1916	1000				
6-40	1916	850*				
6-40	1916	650				
6-40	1915	675*				
6-40	1915	550				
6-40	1914	550*				
HUPMOBILE—						
M	1916	725				
K	1915	550				
32	1914	400				
32	1912	250				
JEFFERY—						
4	1916		690			
6	1916		700			
KING—						
E	1916	975				
D	1915	550				
C4	1915	400				
B	1914	250				
MAXWELL—						
25	1917	450				
25	1916	375				
....	1915	250				
....	1914	150				
MITCHELL—						
6	1916	550				
6	1915		300			
6	1914	300				
OAKLAND—						
32	1916	450				
37	1915	400				
36	1914	350				
OLDSMOBILE—						
43	1916	775		680		
4	1915	500				
6	1915	700				
OVERLAND—						
75	1916	400				
83	1916	450				
95	1916	650				
80	1915	450				
79	1914	275				
PAIGE—						
6-46	1917		1000			
BS	1916		725			
SS	1916	550				
BS	1915		550			
4	1914	300				
REO—						
6	1916		750			
4	1916	500		500		
6	1915		475	475		
4	1914	325				
SAXON—						
....	1917	815				
6	1916	550				
4	1916		300			
6	1915	400				
4	1915		200			
STUDEBAKER—						
17-4	1917		625			
17-4	1916		525			
6	1916		425			
4	1915	375				
6	1914		400			
4	1914	250				

Hartford

BRISCOE—						
....	1916			500		
BUICK—						
SS	1916	750				
C24	1915		400			
B37	1914	400		400		
....	1913	220		200		
....	1911	275				
CADILLAC—						
....	1916		1350			
....	1915	1150*		1000		
....	1914	650				
....	1913		375			
....	1912	365				
CHALMERS—						
4	1913			375		
CHEVROLET—						
490	1916	375				
H2	1915	375				
6	1913		500			
DODGE—						
....	1917	650				
....	1916	550		450		
....	1915	400				
E. M. F.—						
....	1912	175				
FORD—						
....	1916			250		
....	1915	200				
....	1914	200		150		
....	1913	125		150		
FRANKLIN—						
....	1916	1200				
HUDSON—						
40	1916		850			
....	1915		700			

HARTFORD—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
HUPMOBILE—						
....	1916	900	....	....	....	....
....	1915	450	....	....	....	....
....	1914	550	....	....	....	....
....	1913	250	....	....	....	....
JEFFERY—						
....	1915	400	....	....	....	....
4	1914	250	....	....	....	....
KISSELL—						
6	1916	650	....	....	....	....
OAKLAND—						
32	1916	600	....	....	....	....
36	1914	375	....	....	....	....
42	1913	....	....	325	....	....
OVERLAND—						
75	1916	425	....	400	....	....
80	1915	475	....	....	....	....
79	1914	275	....	....	....	....
....	1913	175	....	....	....	....
PACKARD—						
125	1916	1400	....	....	....	....
PAIGE—						
....	1914	....	....	250	....	....
PEERLESS—						
6	1915	1000	....	....	....	....
PIERCE-ARROW—						
6-48	1910	....	225	....	....	....
REO—						
4	1916	575	....	....	....	....
SAXON—						
6	1916	475	....	....	....	....
4	1916	....	....	365	....	....
SCRIPPS-BOOTH—						
....	1916	....	....	....	450	....
....	1915	....	....	....	550	....
STUDEBAKER—						
17-6	1917	....	900	....	....	....
....	1914	500	....	....	....	....
STODDARD-DAYTON—						
....	1912	....	....	150	....	....
....	1911	100	....	....	....	....
THOMAS—						
6	1910	....	150	....	....	....
TRUMBULL—						
....	1916	....	....	175	....	....
....	1914	....	....	55	....	....

INDIANAPOLIS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
STUDEBAKER—						
17-6	1917	....	850	....	....	....
17-6	1916	....	800	....	....	....
6	1915	500	....	....	....	....
4	1914	475	....	....	....	....
25	1913	250	....	....	....	....

Kansas City

CADILLAC—							
....	1913	500	....	....	....	....	....
CHALMERS—							
35A	1916	812	....	....	....	....	....
DODGE—...							
....	1916	600	....	....	....	....	....
....	1915	550	....	550	....	....	....
FORD—							
....	1916	225	....	....	....	....	....
....	1915	200	....	....	....	....	....
....	1914	175	....	....	....	....	....
GRANT—							
K	1917	675	....	....	....	....	....
....	1916	560	....	....	....	....	....
HAYNES—							
34	1916	950	....	....	....	....	....
HUDSON—							
6-40	1916	....	900	....	....	....	....
6-40	1915	....	800	....	....	....	....
37	1913	400	....	....	....	....	....
HUPMOBILE—							
N	1916	900	....	....	....	....	....
K	1915	....	650	....	....	....	....
32	1914	475	....	....	....	....	....
32	1913	285	....	....	....	....	....
32	1912	225	....	....	....	....	....
MAXWELL—							
25	1916	425	....	400	....	....	....
25	1915	265	....	....	....	....	....
OAKLAND—							
32	1916	600	....	....	....	....	....
OVERLAND—							
83	1916	550	....	....	....	....	....
86	1916	....	750	....	....	....	....
82	1915	....	700	....	....	....	....
80	1915	525	....	....	....	....	....
81	1915	450	....	....	....	....	....
79	1914	375	....	....	....	....	....
69	1912	275	....	....	....	....	....
PAIGE—							
6-46	1916	....	950	....	....	....	....
SAXON—							
S2	1916	600	....	....	....	....	....
14	1916	....	275	....	....	....	....
B	1915	....	275	....	....	....	....
S	1915	475	....	....	....	....	....
STUDEBAKER—							
17-4	1917	750	....	....	....	....	....

Louisville

BUICK—						
D45	1916	750	.....	.....	.....	.....
C38	1915	450	.....	450	.....	.....
B25	1914	250	.....	.....	.....	.....
CADILLAC—						
53	1916	.....	1450	.....	.....	.....
51	1915	.....	950	.....	.....	.....
....	1914	600	.....	.....	.....	.....
....	1913	550	.....	.....	.....	.....
....	1912	475	.....	.....	.....	.....
....	1911	300	.....	.....	.....	.....
DODGE—						
....	1916	625	.....	.....	.....	.....
....	1915	550	.....	575	.....	.....
FORD—						
T	1916	270	.....	200	.....	.....
T	1915	200	.....	174	.....	.....
T	1913	175	.....	.....	.....	.....
T	1912	120	.....	190	.....	.....
FRANKLIN—						
6	1915	1050	.....	.....	.....	.....
HUDSON—						
SS	1916	.....	1300	.....	.....	.....
6-40	1915	.....	600	785	.....	.....
37	1913	375	.....	.....	.....	.....
MAXWELL—						
....	1916	475	.....	.....	.....	.....
OVERLAND—						
85	1917	650	.....	.....	.....	.....
83	1916	400	.....	.....	.....	.....
REO—						
R	1916	600	.....	.....	.....	.....
R	1915	400	.....	.....	.....	.....
R	1914	350	.....	.....	.....	.....
R	1913	300	.....	.....	.....	.....
R	1912	250	.....	.....	.....	.....
STUDEBAKER—						
17-4	1916	.....	710	.....	.....	.....
6	1915	.....	675	.....	.....	.....

Minneapolis

APPERSON—	1914	400
BUICK—		
D44	1916	575
D45	1916	800
D56	1918	1240
C37	1915	475
C54	1915	650
B26	1914	400
B25	1914	350

MINNEAPOLIS—Continued

Car & Model	Year	3-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
CADILLAC—						
53	1916	....	*1650	....	....	....
51	1915	....	*1350	....	....	....
....	1914	....	850	....	....	....
CHEVROLET—						
H2	1916	400	....	450	....	....
H2	1915	....	....	450	....	....
CHALMERS—						
32	1916	650	....	....	....	....
26A	1914	550	....	....	....	....
30	1911	125	....	....	....	....
DODGE—						
....	1916	625	....	500	....	....
....	1915	500	....	....	....	....
FORD—						
T	1916	325	....	325	....	....
T	1915	300	....	....	....	....
T	1914	250	....	....	....	....
T	1913	180	....	....	....	....
HAYNES—						
....	1915	....	800	....	....	....
28	1914	550	....	....	....	....
HUPMOBILE—						
M	1916	950	....	....	....	....
M	1915	550	....	....	....	....
....	1912	285	....	....	....	....
20	1910	....	....	100	....	....
JEFFERY—						
93	1914	600	....	....	....	....
KING—						
D	1916	700	....	800	....	....
C	1915	450	....	....	....	....
MAXWELL—						
25	1916	500	....	412	....	....
25	1915	325	....	....	....	....
MITCHELL—						
....	1917	....	*1350	....	....	....
....	1914	....	250	....	....	....
OAKLAND—						
32	1915	650	....	....	....	....
OLDSMOBILE—						
43	1916	750	....	....	....	....
44	1916	....	850	....	....	....
OVERLAND—						
75B	1917	475	....	....	....	....
83B	1916	490	....	450	....	....
PAIGE—						
Glnwd	1915	400	....	....	....	....
REO—						
R	1915	500	....	....	....	....
M	1915	750	....	....	....	....
....	1914	450	....	....	....	....
....	1913	300	....	....	....	....
....	1912	200	....	....	....	....
SAXON—						
14	1916	....	....	275	....	....
S	1915	500	....	....	....	....
STUDEBAKER—						
17-6	1916	....	700	....	....	....
6	1916	600	575	....	....	....
17-4	1916	700	....	....	....	....
6	1914	475	....	....	....	....
4	1914	400	375	....	....	....

Newark, N. J.

CHEVROLET—							
490	1916	425	.....	.....	.....	.....	.....
H4	1916	500	.....	.....	.....	.....	.....
H2	1915	400	.....	.....	.....	.....	.....
490	1915	375	.....	.....	.....	.....	.....
GRANT—							
....	1916	535	.....	.....	.....	.....	.....
OAKLAND—							
32	1916	*500	.....	*500	.....	.....	.....

Omaha

BUICK—							
45	1916	780	....	....	....	....	....
37	1915	600	....	....	....	....	....
C25	1914	....	....	450	....	....	....
CARTERCAR—							
....	1914	100	....	....	....	....	....
CHALMERS—							
35B	1916	....	1000	....	....	....	....
CADILLAC—							
....	1913	185	....	....	....	....	....
COLE—							
851	1915	....	....	850	....	....	....
C	1912	125	....	....	....	....	....
FORD—							
T	1916	250	....	....	....	....	....
T	1915	263	....	....	....	....	....
T	1914	200	....	....	....	....	....
T	1913	100	....	....	....	....	....
GRANT—							
TT	1915	232	....	....	....	....	....
MAXWELL—							
25	1917	575	....	....	....	....	....
25	1916	350	....	....	....	....	....
OVERLAND—							
83	1916	550	....	....	....	....	....
75	1916	475	....	450	....	....	....
80	1915	500	....	....	....	....	....
81	1915	....	....	350	....	....	....
STUDEBAKER—							
6	1914	450	....	....	....	....	....
4	1914	300	....	....	....	....	....

New York

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
CHALMERS—						
35A	1916	725*	....	....	....	....
35A	1916	....	....	....	....	....
32B	1916	....	750	....	....	....
26B	1915	....	550	....	....	....
M6	1914	450	....	....	....	....
32A	1915	600	....	....	....	....
17	1913	....	....	....	300	....
CHEVROLET—						
H2	1916	500	....	....	....	....
490	1915	300	....	....	....	....
H2	1915	475	....	....	....	....
DODGE—						
....	1915	425*	....	....	....	....
....	1916	550*	....	....	....	....
DORT—						
....	1916	550	....	....	....	....
FORD—						
....	1915	200	....	175	....	....
....	1916	250	....	200	....	....
....	1917	300	....	275	....	....
FRANKLIN—						
8	1916	1450	....	....	....	....
HAYNES—						
37	1917	....	1200	....	....	....
36	1917	1200	....	....	....	....
35	1916	....	1000	....	....	....
34	1916	1000	....	....	....	....
28	1914	450	....	....	....	....
....	1910	150	....	....	....	....
HUDSON—						
40	1916	....	1500*	....	....	....
SS	1916	....	1250*	....	....	....
6-40	1916	....	800*	....	....	....
6-40	1915	....	550*	....	....	....
HUPMOBILE						
N	1916	850	....	....	....	....
K	1915	550	....	....	....	....
N	1916	....	850	....	....	....
32	1914	450	....	....	....	....
JEFFERY—						
471	1916	....	650*	....	....	....
472	1917	....	700*	....	....	....
661	1916	....	900*	....	....	....
KING—						
D	1916	800*	....	....	....	....
E	1916	....	....	....	....	....
E	1916	....	980*	....	....	....
C	1914	400	....	....	....	....
MAXWELL—						
....	1917	450	....	....	....	....
....	1916	375	....	350	....	....
....	1916	....	....	....	....	....
MITCHELL—						
....	1917	....	950	....	....	....
....	1916	....	700	....	....	....
....	1915	....	500	....	....	....
....	1914	....	300	....	....	....
....	1913	....	175	....	....	....
NATIONAL—						
AC	1916	....	1125*	....	....	....
AC	1916	1050	....	....	....	....
Nwpt	1916	....	1800	....	....	....
OAKLAND—						
32B	1916	600	....	....	....	....
32A	1916	525	....	....	....	....
38	1915	700	....	....	....	....
42	1913	400	....	....	....	....
OLDSMOBILE—						
44	1916	750	....	800	....	....
43	1915	650	....	700	....	....
42	1915	475	....	500	....	....
OVERLAND—						
75	1916	430*	....	420*	....	....
83	1916	450*	....	450*	....	....
81	1915	350*	....	....	....	....
79	1914	300*	....	....	....	....
PAIGE—						
....	1917	....	900*	....	....	....
....	1916	825*	....	....	....	....
....	1915	700*	....	....	....	....
....	1915	500	....	....	....	....
....	1914	400*	....	....	....	....
REO—						
6	1916	....	775*	....	....	....
6	1916	....	....	....	....	900*
4	1916	....	....	650*	....	....
4	1916	550*	....	....	....	....
SAXON—						
14	1916	....	....	250	....	....
S2	1916	550	....	....	....	....
S	1915	400	....	....	....	....
B	1915	....	....	275	....	....
STUDEBAKER—						
17-4	1916	....	600	....	....	....
17-6	1916	....	825	....	....	....
17-4	1916	....	610	....	....	....
4	1915	450	....	400	....	....
Oklahoma City						
BUICK—						
37	1915	475	....	....	....	....
C24	1914	400	....	....	....	....
C34	1913	....	....	200	....	....
BRISCOE—						
....	1915	....	....	....	350	....
FORD—						
T	1916	325	....	....	....	....
T	1915	275	....	....	....	....
T	1914	225	....	....	....	....

OKLAHOMA CITY—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
HUPMOBILE—						
....	1915	500	....	....	....	....
INTER-STATE—						
T	1915	450	....	....	....	....
MITCHELL—						
C42	1916	900	....	....	....	....
OVERLAND—						
75	1917	450	....	450	....	....
83T	1916	450	....	....	....	....
80T	1915	400	....	....	....	....
69	1913	200	....	....	....	....
REO—						
4	1915	400	....	....	....	....

Peoria

CHEVROLET—						
H2	1916	475	....	....	....	....
FORD—						
T	1916	250	....	225	....	....
T	1915	215	....	200	....	....
T	1914	200	....	175	....	....
T	1913	175	....	150	....	....
DODGE—						
....	1916	600	....	....	....	....
....	1915	500	....	....	....	....
HUDSON—						
6-64	1915	....	525	....	....	....
HUPMOBILE—						
N	1916	975	....	....	....	....
K	1915	750	....	....	....	....
HA	1914	525	....	....	....	....
H	1913	300	....	....	....	....
C	1910	....	....	150	....	....
STUDEBAKER—						
17-6	1916	....	700	....	....	....

Philadelphia

BRISCOE—						
4-38	1916	400	....	....	....	....
....	1915	250	....	....	....	....
BUICK—						
D45	1916	725	700	....	....	....
D55	1916	....	815	....	....	....
D44	1916	....	....	650	....	....
C24	1915	....	....	425	....	....
C25	1915	412	....	....	....	....
C37	1916	400	....	....	....	....
HAYNES—						
35	1916	....	1000	....	....	....
34	1915	750	....	....	....	....
JEFFERY—						
4	1916	700	750	650	....	....
6	1916	900	950	900	....	....
4	1915	500	550	....	....	....
6	1915	600	625	....	....	....
4	1914	350	375	350	....	....
KING—						
D	1916	900	....	....	....	....
MAXWELL—						
25	1916	450	....	....	....	....
20	1915	375	....	....	....	....
OAKLAND—						
32	1916	575	....	600	....	....
OVERLAND—						
84	1916	700	....	....	....	....
85	1916	....	750	....	....	....
75	1916	425	....	400	....	....
83	1916	525	....	500	....	....
80	1915	425	....	400	....	....
69	1913	175	....	....	....	....
79	1914	250	....	....	....	....
PAIGE—						
Fltwd	1916	800	....	....	....	....
Frld	1916	....	900	....	....	....
....	1915	....	700	....	....	....
Glnwd	1915	500	....	....	....	....
REO—						
M	1916	....	825	....	....	....
R	1916	650	....	....	....	....
R	1915	550	....	....	....	....

Pittsburgh

BUICK						
SS	1916	525	....	....	....	....
45	1916	800	....	....	....	....
6	1915	500	....	....	....	....
25C	1915	450	....	....	....	....
4	1914	295	....	....	....	....
B25	1913	300	....	....	....	....
34	1912	....	212	....	....	....
CADILLAC—						
63	1916	....	1600	1550	....	....
51	1915	900	1250	....	....	....
4	1914	550	....	....	....	....
4	1913	500	475	....	....	....
4	1912	300	....	....	....	....
4	1910	80	....	....	....	....
CHALMERS—						
6-30	1917	....	800	....	650	....
6-40	1916	....	....	....	500	....
6-30	1916	850	....	....	....	....
....	1912	240	....	....	....	....
CHEVROLET—						
H2½	1915	....	....	....	250	....

PITTSBURGH—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
DODGE—						
....	1917	....	....	550	....	....
....	1916	575	....	500	....	....
DORT—						
....	1916	495	....	....	....	....
....	1915	....	....	375	....	....
FORD—						
T	1917	....	....	325	....	....
T	1916	250	....	250	....	....
T	1915	200	....	225	....	....
HAYNES—						
6	1916	700	....	....	....	....
....	1915	650	....	....	....	....
HUDSON—						
SS	1916	....	1200	....	....	....
6-40	1915	....	625	....	....	....
HUPMOBILE—						
....	1915	350	....	....	....	....
32	1914	400	....	....	....	....
JEFFERY—						
J4	1915	350	....	....	....	....
J4	1914	300	....	....	....	....
KING—						
E	1916	....	....	....	1100	....
MAXWELL—						
25	1916	300	....	300	....	....
....	1912	125	....	....	....	....
MITCHELL—						
C7-42	1917	....	1050	....	....	....
C7-42	1916	....	800	....	....	....
C5-52	1916	825	....	....	....	....
6	1915	400	....	....	....	....
OAKLAND—						
....	1917	550	....	....	....	....
38	1916	400	....	....	....	....
32	1916	560	....	....	....	....
OLDSMOBILE—						
43	1916	750	....	....	....	....
OVERLAND—						
83	1916	400	....	....	....	....
75B	1916	....	....	400	....	....
....	1915	425	....	337	....	....
PAIGE—						
6-36	1916	700	....	....	....	....
6-46	1916	....	750	....	....	....
PEERLESS—						
56	1916	....	1500	....	....	....
REO—						
4	1915	400	....	....	....	....
SAXON—						
S	1916	....	....	....	600	....
STUDEBAKER—						
17-6	1917	....	837	....	....	....
17-6	1916	700	....	....	....	....
6	1915	500	....	....	....	....
4	1915	....	300	....	437	....
4	1914	350	....	....	....	....
4	1913	175	....	....	....	....

Providence

BUICK—						
44	1916	750	....	....	750	....
36	1915	500	....	....	500	....
24	1915	400	....	400	....	....
CADILLAC—						
51	1916	....	1600	....	....	....
53	1915	....	1150	....	....	....
CHALMERS—						
6-40	1916	....	850	....	....	....
6-30	1916	850	....	250	....	....
CHANDLER—						
....	1916	....	1000	....	....	1000
....	1915	....	700	700	....	....
COLE—						
8-60	1917	....	1200	....	....	....
8-60	1916	....	1000	....	....	....
DODGE—						
....	1916	550	....	550	....	....
....	1915	450	....	450	....	....
FORD—						
T	1916	190	....	175	....	....
T	1915	165	....	150	....	....
FRANKLIN—						
8	1916	1400	....	....	....	....
5	1915	1150	....	....	1050	....
5	1914	....	....	850	....	....
HUDSON—						
6-40	1916	950	....	....	1000	....
6-40	1915	....	750	....	....	....
HUPMOBILE—						
....	1916	....	800	800	....	....
....	1915	550	....	550	....	....
....	1914	400	....	400	....	....
JEFFERY—						
4	1916	....	650	....	....	....
KING—						
E	1916	....	1050	....	....	....
D	1916	800	....	....	....	....
MAXWELL—						
25	1916	375	....	345	....	....
25	1915	300	....	270	....	....
MITCHELL—						
C42-1	1916	750	....	....	....	....
6	1915	500	....	....	....	....

PROVIDENCE—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
OLDSMOBILE—						
43	1916	725	....	....	....	....
44	1916	....	800	....	....	....
42	1915	450	....	....	....	....
OVERLAND—						
83	1916	500	....	....	....	....
86	1916	....	700	....	....	....
80	1915	500	....	400	....	....
PAIGE—						
6-46	1916	....	850	....	....	....
6-46	1915	....	700	....	....	....
4-36	1914	375	....	....	....	....
REO—						
R	1916	675	....	675	....	....
R	1915	525	....	525	....	....
SAXON—						
S	1916	450	....	....	....	....
STUDEBAKER—						
17-4	1916	....	600	....	....	....
17-5	1916	....	675	....	....	....
4	1915	....	425	....	....	....
6	1915	....	525	....	....	....

St. Louis

FRANKLIN—						
8	1916	1350	....	....	....	....
CADILLAC—						
53	1916	....	1700*	....	....	....
51	1915	....	1300*	....	....	....
4	1914	....	800	....	....	....
4	1913	....	600	....	....	....
4	1912	....	500	....	....	....
STUDEBAKER—						
4	1915	....	500	....	....	....
6	1915	....	650	....	....	....
6	1914	....	650	....	....	....
4	1914	....	420	....	....	....
4	1913	400	....	....	....	....
OVERLAND—						
83	1916	525	....	....	....	....
80	1915	400	....	....	....	....
79	1914	325	....	....	....	....
DODGE—						
	1916	550	....	....	....	....
	1915	450	....	....	....	....
DORT—						
	1916	550	....	....	....	....
FORD—						
T	1915	....	220	....	....	....
T	1914	200	....	....	....	....
HAYNES—						
35	1916	....	1275	....	....	....
34	1916	1200	....	....	....	....
HUPMOBILE—						
	1916	950	....	....	....	....
	1915	750	....	....	....	....
	1914	600	....	....	....	....
JEFFERY—						
6	1915	750	....	....	....	....
4	1914	1400	....	....	....	....

SYRACUSE—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
CHANDLER—						
17	1916	....	1000	....	....	....
16	1915	....	775	....	....	....
15	1914	....	575	....	....	....
14	1913	500	....	....	....	....
MAXWELL—						
25	1916	450	....	....	....	....
25	1915	325	....	....	....	....
OLDSMOBILE—						
8	1916	....	800	....	....	....
4	1916	....	700	....	....	....
4	1914	500	....	....	....	....
OVERLAND—						
75	1916	550	....	450	....	....
83	1916	537	....	525	....	....
80	1915	525	....	450	....	....
79	1914	425	....	....	....	....
71	1913	350	....	....	....	....
69	1913	300	....	....	....	....
59	1912	237	....	237	....	....
PAIGE—						
6-46	1916	....	1050	....	....	....
6-46	1915	....	975	....	....	....
6-38	1915	500	....	....	....	....
4-36	1914	450	....	....	....	....

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr	4-pas rdstr
SAXON—						
S2	1916	550	....	....	....	....
M	1916	....	....	300	....	....
WILLYS-KNIGHT—						
4	1915	700	....	....	....	....
4	1914	650	....	....	....	....

Too Late To Classify

Fargo, N. D.

CADILLAC—						
....	1912	475	....	....	....	....
CHALMERS—						
....	1916	925	....	....	....	....
....	1914	325	....	....	....	....
....	1910	150	....	....	....	....
DODGE—						
....	1915	565	....	....	....	....
FORD—						
T	1916	275	....	....	....	....
T	1915	225	....	....	....	....
T	1914	200	....	....	....	....
T	1913	....	....	150	....	....

Will Be Extremely Valuable

Editor Motor World: The writer thinks your plan to publish each week the prices at which used cars have been sold during the previous week will be extremely valuable.

It is hoped by the writer that you will show the dealer that he should get enough above the allowance to cover the expense of selling and handling the used car, i.e., if we know a car will sell for a given amount, we should deduct from that amount what it costs us to sell that car.

Education is the only cure for "long trades," and publicity of actual market values will come nearer getting the used car down to a proper basis than anything I know of.

If our firm, or the Automobile Trades Association of Champaign County, can do anything to help you on this plan, call upon us.—H. A. Amerman, for Marmon Buick Sales Co., Urbana, Ill.

What Dealers Think of

Motor World Used Car Price Record

Editor Motor World: I note with pleasure that you are preparing to publish a Used Car Price Record. This is just what is needed, and is what I have been on the point of suggesting several times, but did not see just how you could get the information without too much expense. But now that you have solved the problem I wish to express my appreciation and wish you the best of success in the new department.—Otis Doty, Canisteo, N. Y.

Just What Is Needed

Editor Motor World: The plan of furnishing the dealers with the various used car selling prices throughout the United States is most practical and worthy of enthusiastic support from every source. As I understand your plan of trying to solve the used car situation, MOTOR WORLD can be of much assistance to the dealers, providing the dealers see fit to be of much assistance to MOTOR WORLD.

Part of our system in handling used cars in this city provides for used car sale reports being made out each month by the dealers and sent to this office, these records assist us materially in placing the proper value on used cars brought to this office for appraisal. It would be a great pleasure to me to send you copies each month of the used car sale reports, as sent to this office from the thirty automobile dealers in Grand Rapids. That we might further co-operate with you in the compiling of these used car sale reports I might add that if your field representative will call at my office in the lobby of the Pantlind Hotel, I would be pleased to ask the various automobile dealers in this city for such additional information as you may desire over and above the used car sale reports obtained from this office.

The appraisal system here has been in operation since Dec. 18, and is very successful. In fact, only yesterday one dealer stated that he would rather pay

\$50 a month for the continuance of our appraisal plan than to go back to the old shopping days of "dog eat dog," and would willingly send his check for \$50 to the association's office each month. If I can be of further assistance to you, call on me.—Ernest T. Conlon, secretary, Automobile Business Association, Grand Rapids.

Profitable Results Will Follow

Editor Motor World: I have read with considerable interest article in MOTOR WORLD regarding solution of used car problem.

Having been on the selling end, I realize the serious problem that the dealers have to solve, and believe that good results will be obtained by the campaign which you have started. Something of this kind is needed to educate the average dealer in automobiles, and the writer believes that if they will follow out suggestions which you will offer from time to time, profitable results will be obtained.—Mercer Automobile Company, Geo. Smith, sales manager.

A Great Service

Editor Motor World: Your new idea of publishing a Used Car Price Record with every issue will be a great service feature to every dealer.

Personally, I would be only too glad to co-operate with you, and I am of the opinion that if you had certain forms made out that many of the larger dealers would mail these to you at regular intervals, showing the exact price secured on their second-hand sales.

It is my opinion, in judging the value of any make of used car, that the condition of the car itself should control the price of the car to a great extent.

Command me if I can be of any service to you and I sincerely hope that we will see the Used Car Record in an early issue.—Russell P. Taber, Inc., R. P. Taber, president, Hartford, Conn.

Best Means of Serving Dealers

Editor Motor World: In reference to MOTOR WORLD's Used Car Record:

You are to be highly commended for this—your latest (and best) means of serving dealers. Undoubtedly the major portion of dealers live from hand to mouth, and principally because of their inability to successfully cope with this phase of the business. Your efforts will do much to improve their condition in this respect.

Unfortunately the attitude of a certain type of manufacturer tends to increase rather than lessen the evil you are trying to correct. Only recently, a certain manufacturer came to me and said: "Silver, I want you to give me your opinion as to whether, in bringing out a new model, I should list it at \$1,200 with a dealer's discount of 25 per cent, or shall I list it at \$1,500 and give the dealer 40 per cent, so as to permit him to make big allowances in taking other cars in trade?"

In my opinion, you cannot possibly serve dealers better than to continue your Used Car Price Record, and if in my small way I can be of any service to you, you have but to command me.—C. T. Silver, president, New York.

Will Be of Much Interest

Editor Motor World: Mr. Morse noticed with much interest the article in your issue of March 28 relative to the used car problem. He then turned the paper over to me with the suggestion that I should read it and take it up with the manager of our used car department and the editor of our weekly paper.

I will be very pleased, indeed, to do this, and will be only too happy to give you a notice in our papers and to urge the use of such an idea by our used car manager.

I have no doubt that the further articles along this line will be of much interest to dealers everywhere.—W. L. Agnew, director of advertising, Chalmers Motor Co., Detroit.

Where You Can Buy

PARTS FOR 241 ORPHAN CARS

The list that follows shows the sources from which parts may be obtained for cars whose manufacturers have ceased to manufacture those cars. Some time ago a list was published in MOTOR WORLD and this is included in and supplemented by the list that appears herewith.

CAR	COMPANY AND ADDRESS	CAR	COMPANY AND ADDRESS
A		C	
Abbott.....	{ Consolidated Car Co., Detroit Puritan Machine Co., Detroit Jos. C. Gorey & Co., New York Abbott-Detroit Parts Corp., New York	California.....	{ California Auto Co., Los Angeles, Cal. Puritan Machine Co., Detroit
Acme.....	{ Puritan Mach. Co., Detroit Auto Parts Co., Chicago	Cameron.....	{ Cameron Mfg. Co., New Haven, Conn. Auto Parts Co., Chicago
Aerocar.....	{ Puritan Machine Co., Detroit International Motor Co., New York Puritan Mach. Co., Detroit	Carhartt.....	{ Jos. C. Gorey & Co., New York Puritan Machine Co., Detroit
Alco.....	{ Jos. C. Gorey & Co., New York American Locomotive Co., Providence, R. I. Alco Service Co., Philadelphia Rand & Chandler, Los Angeles, Cal.	Carnation.....	{ Carnation Motor Car Co., Detroit Auto Parts Co., Chicago Puritan Machine Co., Detroit K. C. Auto Parts Co., 1827 McGee St., Kansas City, Mo.
Alden-Sampson.....	Standard Motor Parts Co., New Castle, Ind.	Cartercar.....	Puritan Machine Co., Detroit
Allen-Kingston.....	New Departure Co., Bristol, Conn.	Carthage.....	Puritan Mach. Co., Detroit
Ailis-Chalmers.....	Puritan Machine Co., Detroit	Cavac.....	Puritan Machine Co., Detroit
Alpena.....	Puritan Machine Co., Detroit	Century.....	Puritan Mch. Co., 422 Lafayette Blvd., Detroit
American.....	{ Levens Motor Co., Philadelphia, Pa. American Motor Parts Co., Indianapolis V. A. Longaker Co., Indianapolis Jos. C. Gorey & Co., New York Puritan Mach. Co., Detroit Burt Motor Car Co., Los Angeles, Cal.	Chadwick.....	{ Chadwick Eng. Works, Pottstown, Pa. Auto Parts Mfg. Co., Detroit Chief Motor Co., Detroit
American Mors.....	St. Louis Car Co., St. Louis	Cine.....	Haberer & Co., Cincinnati
American Truck.....	Auto Parts Co., Chicago	Cinco.....	{ Puritan Mach. Co., Detroit Clark Motor Car Co., Shelbyville, Ind. Meteor Motor Car Co., Piqua, Ohio Clark Auto Co., Atlanta, Ga. Puritan Machine Co., Detroit American Motors Parts Co., Indianapolis
Amplex.....	Gillette Motors Co., Mishawaka, Ind.	Clark-Carter.....	{ Cutting Motor Car Co., Jackson, Mich. L. C. Erbes, Waterloo, Iowa Puritan Machine Co., Detroit Robt. M. Cutting Co., 2635 S. Wabash Ave., Chicago
Anchor.....	Anchor Buggy Co., Cincinnati	Cleveland.....	{ Western Motor Car Co., Cleveland, Ohio Garford Motor Truck Co., Lima, Ohio
Anhut.....	{ Puritan Machine Co., Detroit Auto Parts Co., Chicago	Coates-Goshen.....	{ Coates-Goshen Auto Co., Goshen, N. Y. Miller Car Co., Goshen, N. Y.
Ardsley.....	Ardsley Motor Car Co., Yonkers, N. Y.	Colby.....	A. O. Smith, Milwaukee, Wis.
Argo.....	Puritan Mach. Co., Detroit	Colburn.....	{ Colburn Automobile Co., Denver, Col. Erickson & Stalnaker, Denver, Col. Puritan Mach. Co., Detroit
Atlantic.....	Puritan Machine Co., Detroit	Colley.....	Puritan Machine Co., Detroit
Atlas.....	{ Auto Parts & Repair Co., Springfield, Mass. Puritan Machine Co., Detroit Jos. C. Gorey, New York City	Columbia.....	{ Columbia Auto Repair Co., Hartford, Conn. Standard Motor Parts Co., Newcastle, Ind.
Autocar.....	Autocar Co., Ardmore, Pa.		
B		D	
Babcock.....	{ Babcock Mfrs. Supply Co., Watertown, N. Y. Puritan Machine Co., Detroit	Dart.....	Puritan Machine Co., Detroit
Badger.....	{ Schultz & Harder, Columbus, Wis. Puritan Machine Co., Detroit	Dayton.....	Puritan Machine Co., Detroit
Barnes.....	{ Auto Parts Mfg. Co., Detroit Puritan Machine Co., Detroit	Deal.....	Auto Parts Co., Chicago
Benham.....	{ Puritan Mach. Co., Detroit Louis J. Bergdoll Co., Philadelphia	Dearborne-Detroit.....	Hawn Motor Car Co., Detroit
Bergdoll.....	{ Levene Motor Co., Philadelphia Jos. C. Gorey, New York City E. B. Belcher, Cambridge, Mass.	De Luxe.....	Puritan Machine Co., Detroit
Berkshire.....	{ Berkshire Motor Co., Pittsfield, Mass. Puritan Machine Co., Detroit	De Mot.....	Puritan Machine Co., Detroit
Berliet.....	American Locomotive Co., Providence, R. I.	De Tamble.....	{ American Motors Parts Co., Indianapolis Puritan Machine Co., Detroit De Tamble Motors Co., Anderson, Ind.
Bessemer.....	Robt. M. Cutting Co., Chicago	Dragon.....	{ Philadelphia Mch. Wks., Philadelphia Chicago Coach & Carriage Co., Chicago
Black Crow.....	{ Black Mfg. Co., Chicago Crow Motor Car Co., Elkhart, Ind.	Durocar.....	Puritan Machine Co., Detroit
Blomstrom.....	{ Auto Parts Co., Detroit Puritan Machine Co., Detroit	E	
Borland.....	Puritan Machine Co., Detroit	Eclipse.....	{ Kruegar Motor Car Co., Milwaukee Frank Toepfer's Sons, Milwaukee
Briggs-Detroit.....	Puritan Machine Co., Detroit	Edwards.....	{ Edwards Motor Car Co., Long Island City, N. Y. Puritan Machine Co., Detroit
Brintell.....	Puritan Machine Co., Detroit	Electric Vehicle.....	Maxwell Briscoe Motor Co., L. I. City, N. Y.
Brownkar.....	Hinsdale Electrical S. Co., Hinsdale, Ill.	Eik.....	{ Puritan Machine Co., Detroit Auto Parts Co., Chicago
Broc Electric.....	Puritan Machine Co., Detroit	Elmore.....	{ Jos. C. Gorey & Co., New York Puritan Machine Co., Detroit
Brodesser.....	Puritan Machine Co., Detroit	Everitt.....	{ Standard Motor Parts Co., New Castle, Ind. Holt-Chandler, Long Island City, N. Y.
Brush.....	{ Standard Motor Parts Co., Newcastle, Ind. Puritan Machine Co., Detroit	Everitt.....	{ Maxwell Motor Sales, Newcastle, Ind. Jos. C. Gorey & Co., New York Puritan Machine Co., Detroit
Buffalo Electric.....	Davidson Repairshop, 227 West 64th St., New York, N. Y.	Ewing.....	{ Jos. C. Gorey, New York Puritan Mach. Co., Detroit L. E. Ewing, Leader Bldg., Cleveland, O.
C		F	
California.....	{ California Auto Co., Los Angeles, Cal. Puritan Machine Co., Detroit	F. A. L.....	{ Puritan Machine Co., Detroit Auto Parts Co., Chicago
Cameron.....	{ Cameron Mfg. Co., New Haven, Conn. Auto Parts Co., Chicago	F. A. L.....	{ K. C. Motor Parts Co., 1827 McGee St., Kansas City, Mo.
Carhartt.....	{ Jos. C. Gorey & Co., New York Puritan Machine Co., Detroit	Findley.....	L. E. Ewing, Cleveland
Carnation.....	{ Carnation Motor Car Co., Detroit Auto Parts Co., Chicago Puritan Machine Co., Detroit K. C. Auto Parts Co., 1827 McGee St., Kansas City, Mo.	Firestone Columbus.....	{ Puritan Machine Co., Detroit New Columbus Buggy Co., Columbus, Ohio
Cartercar.....	Puritan Machine Co., Detroit	Flanders.....	{ Puritan Machine Co., Detroit Studebaker Corp., Detroit
Carthage.....	Puritan Mach. Co., Detroit	Fuller.....	Jackson Automobile Co., Jackson, Mich.
Cavac.....	Puritan Machine Co., Detroit	G	
Century.....	Puritan Mch. Co., 422 Lafayette Blvd., Detroit	Gaeth.....	Gaeth Motor Car Co., Cleveland
Chadwick.....	{ Chadwick Eng. Works, Pottstown, Pa. Auto Parts Mfg. Co., Detroit Chief Motor Co., Detroit	Garford.....	{ Elyria Belting & Machinery Co., Elyria, Ohio Garford Motor Truck Co., Lima, Ohio Puritan Mach. Co., Detroit
Chief.....	{ Chief Motor Co., Detroit Haberer & Co., Cincinnati	G. J. G.....	Puritan Machine Co., Detroit
Cine.....	Haberer & Co., Cincinnati	Gilde.....	{ Jos. C. Gorey & Co., New York Puritan Machine Co., Detroit
Cinco.....	{ Puritan Mach. Co., Detroit Clark Motor Car Co., Shelbyville, Ind. Meteor Motor Car Co., Piqua, Ohio Clark Auto Co., Atlanta, Ga. Puritan Machine Co., Detroit American Motors Parts Co., Indianapolis	Grabowsky.....	{ Puritan Machine Co., Detroit Jos. C. Gorey, New York City
Clark.....	{ Cutting Motor Car Co., Jackson, Mich. L. C. Erbes, Waterloo, Iowa Puritan Machine Co., Detroit Robt. M. Cutting Co., 2635 S. Wabash Ave., Chicago	Gramm.....	{ Garford Motor Truck Co., Lima, Ohio Puritan Machine Co., Detroit
Clark-Carter.....	{ Cutting Motor Car Co., Jackson, Mich. L. C. Erbes, Waterloo, Iowa Puritan Machine Co., Detroit Robt. M. Cutting Co., 2635 S. Wabash Ave., Chicago	Gleason.....	Bauer Mch. Wks. Co., Kansas City, Mo.
Cleveland.....	{ Western Motor Car Co., Cleveland, Ohio Garford Motor Truck Co., Lima, Ohio	Great Smith.....	{ Bauer Mch. Wks. Co., Kansas City, Mo. Smith Automobile Co., Topeka, Kan.
Coates-Goshen.....	{ Coates-Goshen Auto Co., Goshen, N. Y. Miller Car Co., Goshen, N. Y.	Great Western.....	Great Western Auto Co., Peru, Ind.
Colby.....	A. O. Smith, Milwaukee, Wis.	Grout.....	{ A. F. Kirkpatrick, Orange, Mass. Puritan Mach. Co., Detroit
Colburn.....	{ Colburn Automobile Co., Denver, Col. Erickson & Stalnaker, Denver, Col. Puritan Mach. Co., Detroit	H	
Colley.....	Puritan Machine Co., Detroit	Halladay.....	{ A. O. Barley, Streator, Ill. A. O. Smith Co., Milwaukee W. J. Burt Motor Car Co., Los Angeles
Columbia.....	{ Columbia Auto Repair Co., Hartford, Conn. Standard Motor Parts Co., Newcastle, Ind.	Hart-Kraft.....	{ Quincy Engine Co., Chambersburg, Pa. Petrie & Morganthall, Greencastle, Pa.

CAR	COMPANY AND ADDRESS
Imperial.....	Imperial Automobile Co., Detroit
Indiana.....	Puritan Machine Co., Detroit
Jenkins.....	Puritan Machine Co., Detroit
Jewell.....	Croxton Motor Car Co., Washington, Pa.
Johnson.....	Johnson Service Co., Milwaukee
K	
Keeton.....	{ Keeton Motor Car Co., Detroit Puritan Machine Co., Detroit
Kelly-Springfield.....	{ Car-Nation Motor Car Co., Detroit Puritan Machine Co., Detroit
Kelsey.....	{ Auto Parts & Repair Co., Boston Kelsey Motor Co., Hartford, Conn.
Kline.....	Puritan Machine Co., Detroit
Knox.....	Alco Service Co., Philadelphia, Pa.
Komet.....	{ Elkhart Motor Car Co., Elkhart, Ind. Keith Brothers, Elkhart, Ind.
Krahl.....	Puritan Machine Co., Detroit
Krit.....	{ Puritan Machine Co., Detroit Krit Motor Car Co., Detroit Auto Parts Co., Chicago Motor Corp., Philadelphia, Pa.
L	
Lansden.....	Lansden Co., Inc., Brooklyn, N. Y.
Lewis.....	American Motor Parts Co., Indianapolis
Lexon.....	Puritan Mach. Co., Detroit
Liberty.....	Belmont Auto Mfg. Co., New Haven, Conn.
Lion.....	{ American Motors Parts Co., Indianapolis Auto Parts Co., Chicago Puritan Machine Co., Detroit K. C. Auto Parts Co., 1827 McGee St., Kansas City, Mo. Lion Motor Parts Co., Philadelphia, Pa.
Little Six.....	Puritan Machine Co., Detroit
Logan.....	{ Garford Motor Truck Co., Lima, Ohio Gramm Motor Truck Co., Lima, Ohio Puritan Mach. Co., Detroit
Lozier.....	{ Jos. C. Gorey & Co., New York Phila. Mach. Works, Philadelphia, Pa.
L. P. C.....	{ American Motors Parts Co., Indianapolis Auto Parts Co., Chicago
M	
McIntyre.....	Puritan Mach. Co., Detroit
Marathon.....	{ Marathon Service Co., Nashville, Tenn. Puritan Machine Co., Detroit
Marion.....	{ Puritan Mach. Co., Detroit Auto Parts Co., Chicago Jos. C. Gorey & Co., New York American Motors Parts Co., Indianapolis Marion Auto Service Co., New York City K. C. Auto Parts Co., 1827 McGee St., Kansas City, Mo.
Marron.....	Puritan Mach. Co., Detroit
Marquette.....	Puritan Machine Co., Detroit
Marvel.....	Puritan Machine Co., Detroit
Mason.....	{ Mason Motor Car Co., Detroit Puritan Mach. Co., Detroit
Mather.....	Puritan Machine Co., Detroit
Matheson.....	Matheson Auto Co., Wilkes-Barre, Pa.
Maxwell.....	{ Standard Motor Parts Co., Newcastle, Ind. Puritan Machine Co., Detroit
Maytag-Masen.....	{ Mason Motor Car Co., Detroit Puritan Machine Co., Detroit
Merchant.....	Puritan Machine Co., Detroit
Meteor.....	Meteor Motor Car Co., Piqua, Ohio
Michigan.....	{ Michigan Motor Car Co., Detroit Puritan Machine Co., Detroit Philadelphia Mach. Wks., Philadelphia Dauch Mfg. Co., Sandusky, Ohio Jos. C. Gorey, 354 W. 50th St., New York City K. C. Auto Parts Co., 1827 McGee St., Kansas City, Mo. Puritan Machine Co., Detroit
Middleby.....	{ H. Goldberg, 1420 S. 8th St., Philadelphia A. J. Levensgood, 153 N. 4th St., Reading, Pa.
Midland.....	{ Levene Motor Co., Philadelphia Puritan Machine Co., Detroit Auto Parts Co., Chicago K. C. Auto Parts Co., 1827 McGee St., Kansas City, Mo. Midland Motor Co., 2200 Diamond St., Philadelphia, Pa. Mier Carriage & Buggy Co., Ligonier, Ind.
Mier.....	Puritan Mach. Co., Detroit
Miller.....	{ L. C. Erbes, Waterloo, Iowa Harris Bros. Co., Chicago
Milwaukee.....	Puritan Mach. Co., Detroit
Monarch.....	Jos. C. Gorey, New York
Mora.....	Philadelphia Mch. Wks., Philadelphia
Moyer.....	Puritan Machine Co., Detroit
N	
Nance.....	Jos. C. Gorey, New York
Northern.....	Puritan Machine Co., Detroit
North Western.....	Puritan Machine Co., Detroit
Nyberg.....	{ Levene Motor Co., Philadelphia V. A. Longaker, Indianapolis
O	
Ohio.....	{ Northway Auto Parts & Sales Co., Cincinnati A. O. Smith Co., Milwaukee Puritan Machine Co., Detroit
Oliver.....	{ Oliver Motor Truck Co., Detroit Puritan Machine Co., Detroit
Omaha.....	{ A. O. Smith Co., Milwaukee Puritan Machine Co., Detroit
Orient.....	Metz Co., Waltham, Mass.
Orson.....	Drenco Machine Co., Broadway & 50th St., New York City
Otto-mobile.....	Holly Motor Co., Mt. Holly, N. J.
Overholt.....	A. O. Smith Co., Milwaukee
Owen.....	Puritan Machine Co., Detroit
P	
Packers.....	Puritan Machine Co., Detroit
Palmer-Singer.....	{ Singer Motor Co., Long Island City, N. Y. Puritan Machine Co., Detroit Jos. C. Gorey & Co., New York A. O. Smith Co., Milwaukee Drenco Mach. Co., Bwy. & 50th St., New York City
Parry.....	{ Motor Car Mfg. Co., Indianapolis Pathfinder Co., Indianapolis, Ind.

CAR	COMPANY AND ADDRESS
Peabody.....	Puritan Machine Co., Detroit
Penn.....	{ Puritan Machine Co., Detroit Buda Co., Harvey, Ill. Levene Motor Co., Philadelphia
Pennsylvania.....	{ Puritan Mach. Co., Detroit Central Auto Supply Co., Philadelphia Jos. C. Gorey & Co., New York Dougherty, 1845 N. 19th St., Philadelphia
Peru.....	Puritan Mach. Co., Detroit
Petrel.....	Filer & Stowell Co., Milwaukee
Pierce-Racine.....	{ Puritan Machine Co., Detroit Pierce Motor Co., Racine, Wis.
Pioneer.....	Pioneer Car Mfg. Co., Oklahoma City, Okla.
Pittsburgh.....	{ Chester Engineering Co., Chester, Pa. Hartford Motor Car Co., Hartford, Conn. Walker & Barkman Mfg. Co., Hartford, Conn.
Pope-Hartford.....	{ Puritan Machine Co., Detroit Boulevard Motor Co., Cambridge, Mass. J. Rosenfeld, 521 6th St., South, Boston.
Pope-Toledo.....	Auto Salvage Parts Co., Chicago
Pope-Tribune.....	Pope-Hartford Mfg. Co., Hartford, Conn.
Posa.....	Puritan Mach. Co., Detroit
Pratt-Elkhart.....	Elkhart Carriage & Motor Car Co., Elkhart, Ind.
Pungs-Finch.....	Pungs-Finch Auto & Gas Engine Co., Detroit
Q	
Queen.....	Puritan Machine Co., Detroit
R	
Randolph.....	{ Randolph Motor Truck Co., Flint, Mich. De Kalb Wagon Co., De Kalb, Ill.
Rainier.....	{ Puritan Machine Co., Detroit Garford Motor Truck Co., Lima, Ohio
Rapid.....	Puritan Machine Co., Detroit
Rayfield.....	Holmes Garage, Danville, Ill.
R. C. H.....	{ R. C. H. Corp., Detroit Jos. C. Gorey, New York W. J. Burt Motor Car Co., Los Angeles, Cal.
Reading.....	H. Goldberg, 1420 S. 8th St., Reading, Pa.
Reed.....	Puritan Mach. Co., Detroit
Reliable-Dayton.....	Puritan Machine Co., Detroit
Reliance.....	Puritan Mach. Co., Detroit
Republic.....	Republic Motor Car Co., Youngstown, Ohio
Ricketts.....	{ Ricketts Auto Works, Detroit Levene Motor Co., Philadelphia Puritan Machine Co., Detroit
Rider-Lewis.....	{ V. A. Longaker, Indianapolis Auto Parts Mfg. Co., Detroit
Royal Tourist.....	Puritan Mach. Co., Detroit
S	
Sampson.....	{ Standard Motor Parts Co., Newcastle, Ind. Puritan Machine Co., Detroit
Sandusky.....	Dauch Mfg. Co., Sandusky, Ohio
Schacht.....	{ General Auto Repairs Co., Cincinnati Puritan Machine Co., Detroit
Selden.....	{ Jos. C. Gorey & Co., New York Puritan Machine Co., Detroit
S. G. V.....	{ Drenco Mach. Co., Broadway & 50th St., New York City N. J. Machinery Co., Newark, N. J.
Sibley.....	Sibley Motor Car Co., Detroit
Sommer.....	Sommer Motor Co., Detroit
Southern.....	{ Southern Auto & Equipment Co., Atlanta, Ga. Puritan Machine Co., Detroit
Spaulding.....	Puritan Machine Co., Detroit
Speedwell.....	{ Puritan Mach. Co., Detroit Jos. C. Gorey & Co., New York Green Engineering Co., Dayton, Ohio
Springfield.....	R. Hass Elec. & Mfg. Co., Springfield, Ill.
Standard Six.....	{ St. Louis Car Co., St. Louis, Mo. Puritan Machine Co., Detroit
Star.....	Mier Carriage & Buggy Co., Ligonier, Ind.
Staver.....	Puritan Machine Co., Detroit
Sterling.....	Keith Brothers, Elkhart, Ind.
Stevens-Duryea.....	Walk Hill Garage, 726 Walk Hill St., Matapan, Mass.
Stoddard-Dayton.....	{ Standard Motor Parts Co., Newcastle, Ind. Puritan Machine Co., Detroit
Suburban.....	Dayton Auto Repair Co., New York City
Sultan.....	Puritan Machine Co., Detroit
T	
Thomas.....	{ E. R. Thomas Motor Car Co., Buffalo, N. Y. Puritan Machine Co., Detroit W. H. Jahns, 908 W. Pico St., Los Angeles, Cal. J. Rosenfeld, 521 6th St., South, Boston.
Tincher.....	Chicago Coach & Carriage Co., Chicago
Tourline.....	Jos. C. Gorey, New York
Tourist.....	W. J. Burt Motor Car Co., Los Angeles, Cal.
Traveler.....	Traveler Automobile Co., Evansville, Ind.
Twombly.....	Driggs-Seabury Ordnance Co., Sharon, Pa.
V	
Van.....	L. C. Erbes, Waterloo, Iowa
Van Dyke.....	Puritan Mach. Co., Detroit
Victor-Thomas-Detroit.....	Puritan Machine Co., Detroit
W	
Wagenhalls.....	Riverside Machinery Depot, Detroit
Wahl.....	{ Harris Bros. Co., Chicago Barley Mfg. Co., Streator, Ill. Puritan Machine Co., Detroit
Waltham-Orient.....	Metz Co., Waltham, Mass.
Warren.....	{ Jos. C. Gorey & Co., New York Puritan Machine Co., Detroit
Washington.....	Puritan Machine Co., Detroit
Waverley Electric.....	V. A. Longaker Co., Indianapolis
Wayne.....	{ Auto Parts Mfg. Co., Detroit Puritan Machine Co., Detroit
Weich-Detroit.....	Puritan Machine Co., Detroit
Weich-Marquette.....	Oldsmobile Co., Chicago, Ill.
Weich-Pontiac.....	Puritan Machine Co., Detroit
Whiting.....	{ Chevrolet Motor Co. of Mich., W. Kearsley St., Flint, Mich. Puritan Machine Co., Detroit
Woodworth.....	Puritan Machine Co., Detroit
Y	
Yale.....	Consolidated Mfg. Co., Toledo, Ohio
Z	
Zip.....	H. A. Huebotter, Davenport, Iowa

Accounting *and* Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Sneed

Four Questions About Motor World System

- | | |
|-----------------------------------|---------------------------------------|
| 1—Wants Profit and Loss Statement | 3—Crediting Parts Returned to Factory |
| 2—Wants Statements for Owners | 4—Handling the Bank Account Properly |

(1)

Editor System Department: Our business is selling tires and accessories; storage batteries are sold, repaired and recharged; tires are repaired. All these things are taken care of in three separate departments. For instance, the Battery department under a battery foreman, the tire repair department under a tire foreman, the tires and accessories department under a clerk, etc. We have a bookkeeper who also helps out in the store.

Our present system of bookkeeping is of the single entry type. Our cash register acts as a day book, our cash book and a ledger; the latter takes care of customers accounts and also bills payable.

Our business amounts to between \$25,000 and \$30,000 a year and I feel that I would like to know more about my profits and losses. I do not want an elaborate bookkeeping system. I can get that here but I do want one that is simple and that our bookkeeper can handle with my help. We have discussed this thing a long time and we thought that through the use of cards for a perpetual inventory and daily reports from the departments properly filled out on cards and figured out in my private office, would keep me posted on costs and gains.

We have not overlooked your simplified system and while we liked the idea it did not hit us as just what we wanted.

We also have a branch in a nearby town to consider. Reports come to us daily and give in detail all the business done.

I would appreciate some help from you on this subject and would be glad to furnish you with any further information necessary.

I overlooked to add that our tire repairshop and battery room use tags, but these do not show space for any costs. We thought, for instance, in our repairshop, supposing the foreman handed us a report every night of how many tubes repaired, how many shoes repaired, etc.,

also how much repair stock cement valves, etc., used together with free time given. Couldn't this be arranged on cards so we could get an idea as to how much we are making out of our repair department, etc?

As we are very anxious to get some spizz into our system and get the wheels rolling to better business.—A. G. Hawker, 22 Park Street, New Britain, Conn.

Answer.—We do not believe you will get the result that you are after by using cards such as you have described. In the first place, it is very easy to lose cards and in the next case, you should know more about your business than just what you could place on these cards, such as the number of shoes repaired, how much repair stock, cement, valves and so forth were used, and we do not believe that you could figure out on your cards the profit that you are making in your various departments. Not only does the cost of the repairs have to be included, but all such items as salaries, supplies and your overhead will have to go against your income.

Business of \$30,000

You state that you are doing in the neighborhood of \$30,000 per year and we believe that you will agree with us that this is worth accounting for properly.

We are asking our circulation department to get in touch with you relative to the pamphlet that illustrates and describes the Motor World Simplified System of Accounting. However, we do not wish you to adopt this system unless you are sure that it fits your business. Do not make the mistake of adopting an accounting system and making your business fit it.

In regard to branch store, we suggest that in your accounting you treat this simply as a customer, charging it for everything that is delivered, and it in turn giving you credit for just what is received. Let the branch keep its own accounts and in order to get a complete statement of your entire business you

should combine these two statements of accounts at the end of each month.

The Motor World System on Forms 1 and 2 will tell you your Income and Expenses and the difference between these two forms will be your Profit and your Loss. In addition, it enables you to arrive at balances such as Cash on Hand, Amounts due From Customers, and so forth.

(2)

Editor System Department: We have recently opened a garage here, and are in need of a system of bookkeeping. This job has fallen on the writer and it is up to me to keep an accurate account of all business done and render an account to the other partners each month. Have been interested in your Motor World System, but have not ordered it on account of believing it to be too complicated a system for a small concern as we now are.

To try to give you an idea of what we want; we have formed a partnership, each member putting in his whole time and an amount of money agreed upon. All members share alike, none to draw a salary, and a division of profits or losses to be made monthly.

The whole business resolves itself down into figuring profits or losses monthly so as a division can be made at that time.

As bookkeeper, I have divided the garage up into departments such as accessories, repairshop, etc. On the accessories, I use four columns, one in which everything that is purchased is charged.

At the present time am only entering this at the time that the items are paid for, and this makes another account necessary. Column 2 has all cash sales, column 3 all charge sales and column 4 all cash received on sales charged in column 3.

At the end of the month expect to make an inventory of all stock remaining on hand and credit it in column 2. This is rather a crude way of keeping books and means a great deal of work. The

above description fits the accessories department only but have carried out the same idea on the other departments.

Please send me some information on the Motor World System. If possible, send me a few sample sheets showing how the system works out in the various departments.—C. F. Sprague, The Houma Garage, Akron, Ohio.

Make System Fit Business

Answer.—It has always been the policy of MOTOR WORLD in recommending any systems to first advise careful investigation to make sure that the system fits the business, rather than to try to make the business fit the system. At the same time, you must agree with us that there are practically no systems of accounting or any business systems that can be placed on your desk and made to produce results like a talking machine.

We believe that the Motor World System has produced some wonderful results, but at the same time it will need your attention in order to make those results accurate and to tell a true story of your business. For your information, there are at present 2000 of these systems in use and we believe that when you receive the sample sheets, you will find that they are designed practically in accordance with the idea that you are working out at the present time.

Forms 1 and 2 of the Simplified System of Accounting are designed to tell you your Income and your Expenses, the difference between the two being your Net Profit for the period in which you are working, but as we have stated, if you wish to properly account your business, it will take some time and some trouble of some member of your organization.

(3)

Editor System Department: We buy parts from the Blank Motor Car Co. and sell them to the A. B. C. Garage. Later the A. B. C. Garage ship the old parts to the Blank Motor Car Co. for credit, claiming they were defective. The Blank Motor Car Co. after making an examination send us a C/M likewise.

Now we have an account with the Blank Motor Car Co. and also with the A. B. C. Garage. How do we enter these two credits?—O. R. Mummert, Mgr., Motor Service Co., Alliance, Ohio.

Crediting Returned Parts

Answer.—You will, of course, have entered on Form 1 the charge to the A. B. C. Garage and when the sale was made credited the sale to Income, Parts and Accessories.

The A. B. C. Garage then returned the parts to the Blank Motor Car Co. and the company sends you a credit memorandum covering the return of these parts.

You state that you have an account with both concerns and the entry would be made on Form 1 as follows:

On the Debit side under All Other Accounts you would debit the Blank Motor Car Co., Bills Payable under All Other

Accounts, and on the Credit side under Customers' Accounts, you would credit the A. B. C. Garage.

This debit to the Blank Motor Car Co. would act as an offset to all of the credit on Form 2 that you would show to the same concern for goods that you have purchased from them and are still unpaid. When you come to pay these bills, this Debit will be subtracted from the Credit and the net amount will be what you owe them. The credit memorandum is simply an acknowledgment that they have allowed this much on the amount that you owe them.

(4)

Editor System Department: How do you handle your bank account, as I see no entry as to bank deposits. We pay our salesmen a salary and commission, which, of course, is handled by check. Would this make a debit under car sales, as it is an expense in that department?

We have a credit memo received from our manufacturers, which is to be credited to our customer also. We have entered this on the income accounts debiting Column 2 "All Other Accounts" with \$15, "From Whom Received," the manufacturer's name and the credit entry at the extreme right under "Customer's Accounts," the customer's name and amount making the explanation in the column preceding.—M. B. Hewitt, Reid-Bottomley Co., Akron, Ohio.

Charging Bank Deposits

Answer.—Your bank deposit should equal each day the amount that you have in your column under All Cash Received. Your withdrawals from your bank would be found on Form 2 under All Cash Paid and the difference between these two, of course, is at all times your bank balance.

Whenever you pay a salesman's salary or commission, this would be entered on Form 2 and be debited under your Car Sales account to salary or commission and the credit would be under your All Cash Paid column for the amount of your check.

In answer to your last paragraph we will assume that your customer has returned a part valued at \$15 which you have agreed to get from the manufacturer, or else give him a new part. When you returned this to the manufacturer, you should have made an entry on Form 1 as follows:

Credits to Owners

Under the All Other Accounts column on the Debit side you should charge the manufacturers \$15 and on the Credit side under your Customers' Accounts you would have credited your customer, with the explanation, Part Returned to Manufacturer.

This charge to the manufacturer, of course, would have to be posted to the manufacturers' account that you would carry among your Accounts Payable which would reduce the amount that you owe him, provided, of course, that you carry an open account with the manufacturers. The credit memorandum that was returned to you is simply an acknowledgment that he has credited you with that amount of money and when you come to settle your account with him your total indebtedness to him is reduced by this credit memorandum and you draw your check for what you owe him less this amount, and when you make this entry it will, of course, be on Form 2, charging under All Other Accounts column your manufacturer with the net amount that you owe him and your Credit entry is the check that you draw.

IMPORTANT ANNOUNCEMENT

*These Better Mechanics
Reprints Are Now Ready
They Cost 10 Cents Each*

Subject	No.
Overland—Main and connecting rod bearings.....	1
Cadillac—Cam and fan-shaft driving chains	2
Maxwell—Rear axle repairs...	3
Chevrolet—Clutch repairs....	4
Borg & Beck—Clutch repairs..	5
Hudson—Super-Six oiling system adjustments	6

THE department of *Better Mechanics* which appears every week in *Motor World* is of tremendous value to mechanics. These articles on specific repairs and adjustments are so thoroughly practical that there has been an insistent demand for back issues of *Motor World*.

These cannot be furnished. Every issue of *Motor World* is exhausted a short time after it comes out. But—

Motor World has reprinted a number of these *Better Mechanics* articles and these are now available to subscribers. The articles ready are given in the accompanying table.

All the other articles up to date will be reprinted as rapidly as possible.

GARAGES
SHOWROOMS
REPAIRSHOPS

SCIENTIFIC CONSTRUCTION

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

Elevatorless Corner Garage on Hill Shop in Basement—Showroom and Garage Upstairs

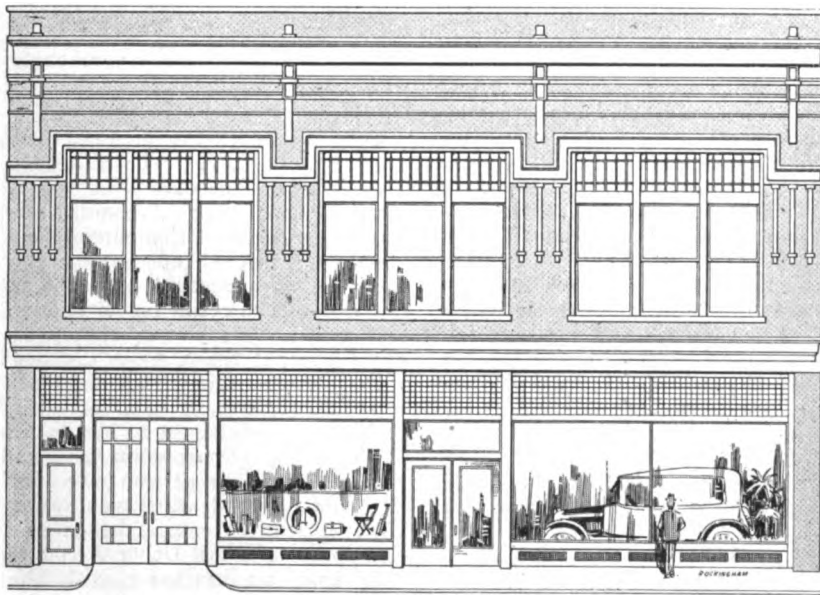


Fig. 1—Really a one-story and basement building with offices for rent occupying a strip across the front of the second story only

main.—Rockingham Automobile Company.

Answer.—Figs. 1 and 2 show a plan which we believe you will find more satisfactory than the one you submitted, inasmuch as the various departments are more conveniently arranged and in addition there is more room for storing cars.

You may object first off to having two rows of cars on one side of the aisle as shown at B and C, but this arrangement is becoming more popular all the time. It causes no confusion if the cars are arranged properly. The cars in row C should be ones which go out late in the morning, those in row B, ones which go out early in the morning and those in row A, doubtful ones. Which row to place a car in may be determined by asking the driver when he comes in, what time he will desire the car in the morning.

The layout of the dental offices upstairs seems to be ideal and we can think of no improvement.

The arrangement of the shop has been changed somewhat. You will find it advisable to arrange the cars in two rows, those nearest the bench being the ones which require serious repairs and the back row being cars which are waiting to be repaired or to be delivered, or which only have minor trouble.

EDITOR Motor World: We are contemplating the building of a new garage in the near future and we have been unable to get just what we wish for convenience and service. Of the several pencil drawings, we have one that comes nearer than the others and we are sending under separate cover, the drawing to you and will appreciate if you will make some suggestions or give us an idea of something that will fill our needs to a better extent than the drawings we are sending. The workshop is to be in basement and the lot has a natural slant from front to back, making a drop in rear where the shop is to be placed, of from 12 to 16 feet.

The second or top floor is to be used for dental offices as one of the firm is a dentist and he wishes his office apartments to be modelled to fill his needs.

Kindly give us some suggestions or a plan that will be suitable as we wish to have the final plans drawn as soon as possible. Thanking you for the courtesy and information desired, we beg to re-

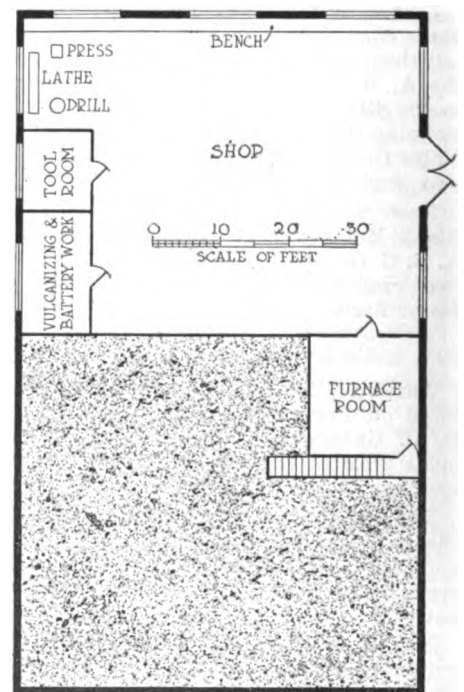
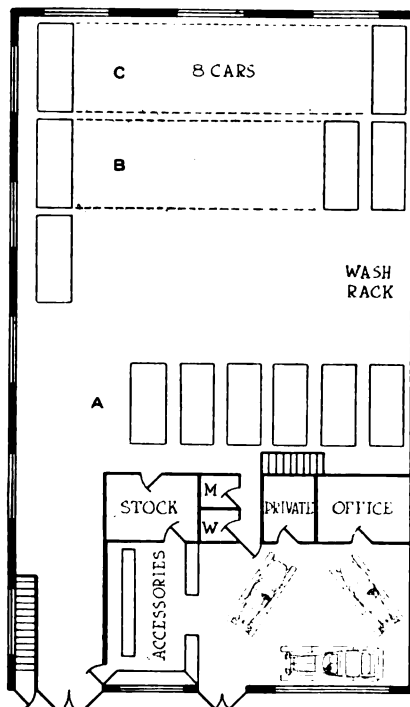


Fig. 2—Three rows of cars are stored in the garage. The accessory store has a glass partition on the garage entrance side. There is a separate room in the shop for vulcanizing and battery work



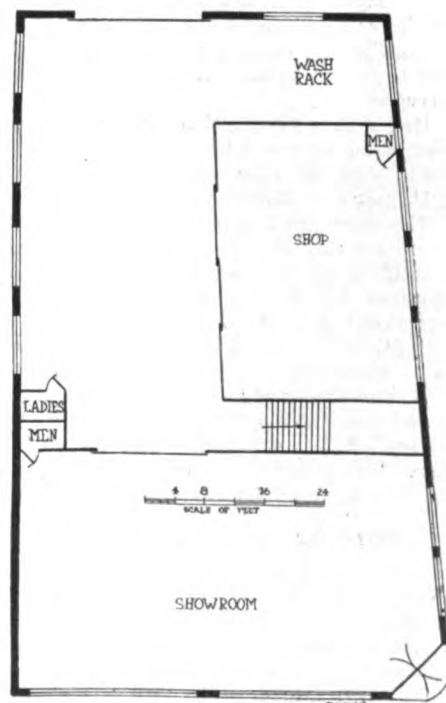
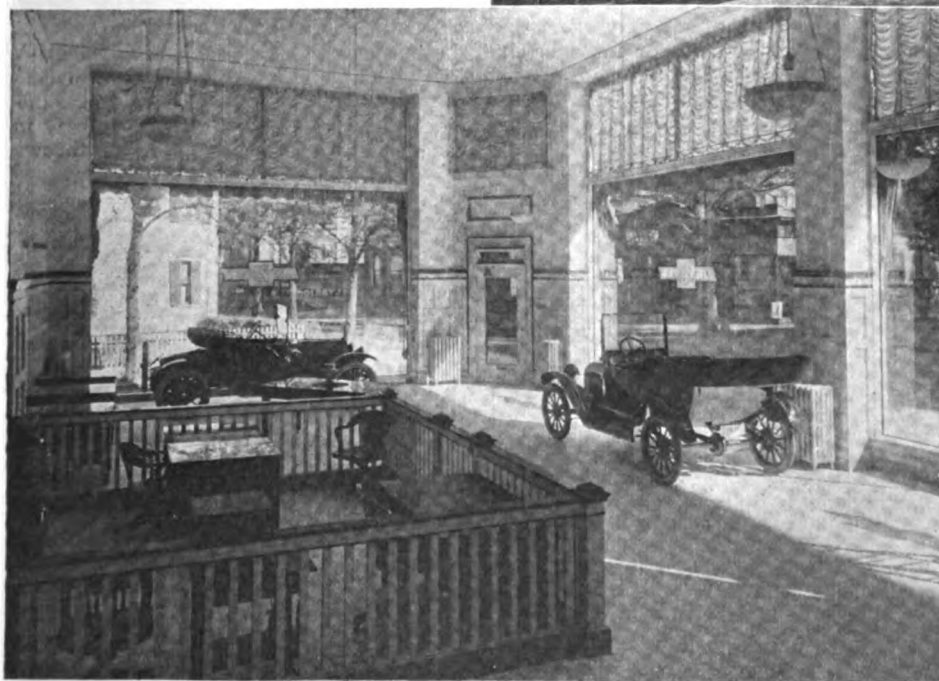
Attractive Quarters for Chevrolet In Providence

THE exterior of the building is tastefully finished in terra cotta and is a striking example of the fine effect which may be obtained with this material. The whole is extremely harmonious, even the borders of the awnings conforming to the general scheme of decoration.

The showroom is a study in white and mahogany and to this extent is reminiscent of colonial days. The office is separate

from the main part of the showroom by a low railing. The floor is tile and the walls are wood paneled to a height of about 5 ft.

The service station, at the rear, is divided into two parts, the shop being separated from the rest of the space by substantial sliding doors. The remainder of the service station is used for storing cars waiting for repairs, for repaired cars, waiting for owners, for new cars, used cars and demonstrators.



Motor World Used Car Price Record

See Page 8

Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

Preventing Joyriding When Delivering Cars

Time-keeping System Shows Just When Driver Leaves and Returns

EDITOR Motor World: We are obliged to call for and deliver cars as requested by the people who store with us.

Can you suggest or do you have forms at hand that will cover this so as to not place us in an embarrassing position with our customers because of the fact that the driver has made a circuitous route in delivering or returning the car to the garage? Plainly speaking, how can we eliminate joy riding when calling for or delivering the owner's car?—H. R. Bitner, Twentieth Century Garage, Philadelphia.

Answer.—You should keep a careful record of when the man leaves the garage and when he returns, and by figuring the length of time you can soon tell whether he does any joy riding or not. Suppose, for example, an owner calls up and asks you to send a man for his car. You know the location of the house and you estimate how long it should take for the man to go to this house and return with the car. Of course, there are some excuses that a man might make if he took too long, such as engine trouble, delays due to traffic, etc., but such circumstances as these would not occur very often.

This is the only system we know of, and as far as we can see it is the only one possible.

Below is a description of such a system, used at the Electric Garage, New York, and described in the March 24, 1915, issue of Motor World:

The cars are called for and delivered once each day any place in the city, and a staff of eight men, styled chasers, are required for this work. Three of these work from 7 A. M. to 7 P. M., three from 7 P. M. to 7 A. M., and two from 12 noon to 12 midnight.

A standing order, as the term implies, is an order that requires the delivery and return of the car at a stated time each day. The order may be countermanded by the owner at any time, however.

Board for Calls and Deliveries

Calls and deliveries are kept track of on the board, Figs. 1 and 2. It is painted white and is ruled with black lines. The upper part is divided into squares, alphabetically arranged. Each square is provided with a hook and on this is placed

a cardboard tag which gives the owner's name, address, telephone number and car license number. This information is also placed on the square. If the car is locked the key is fastened to this tag.

The lower part of the board is divided into squares, which denote when a car is to be called for and delivered. For instance, if John Jones wanted his car at 8 A. M., this fact would be marked on the tag and also on the square, and the clerk in going over the upper part of the board at the beginning of the day would take off this tag and place it on the proper square, which shows that the car is to be delivered in the morning at 8.

At the same time other orders will be put on their proper squares so that it is possible in a very few minutes to arrange all the standing orders for deliveries for the day. As many tags as necessary may be put on one square, and if there were 12 on the 8 o'clock one, for instance, it would be necessary for the chasers to start possibly as early as 7 A. M. on these deliveries in order to have them all made by 8 o'clock.

Not All Standing Orders

Many customers, however, do not give standing orders but call for their cars by 'phone. These are handled in the same way. If a woman calls up at 9 and orders her car for 11, her tag is immediately put on the 11 A. M. square.

Cars are called for in the same way.

If there is a standing order for the return of a car, the tag is put on the proper return square as soon as it is delivered in the morning; otherwise the tag is placed back in its allotted square on the upper part of the board until orders are received.

The time the chaser spends is kept track of by the form shown in Fig. 3. His leaving and returning time are stamped by a time clock, and the owner's name and address, the carfare necessary, and whether the car is delivered or returned are recorded.

How to Fit Bearings

Editor Motor World: Will you kindly explain the proper method of fitting new bearings to the crankshaft. Is it permissible to force the fit by hammer blows? What would be the ill effects of this procedure?—Reader.

Answer.—It is not desirable to fit new bearings by hammering or peening them as this method does not give a smooth, even bearing surface. New bearings should always be scraped to a perfect fit.

Suppose you are fitting new crankshaft bearings, for example. Remove the crankcase from the car and put in the upper halves of the new bearings. Then with the crankcase turned upside down, and resting on a suitable engine stand, place the crankshaft in position. Paint the main journals of the crankshaft with Prussian blue. Then bolt the upper halves of the bearings in place, but not sufficiently tight to distort the crankshaft in case the misfit of the bearings throws



Fig. 1—On the upper squares are placed tags with the owner's name, address, telephone number and car license number. The lower squares are divided off according to time, and the cards are taken off of the upper squares and put on the lower ones to indicate when the cars are to be called for or delivered

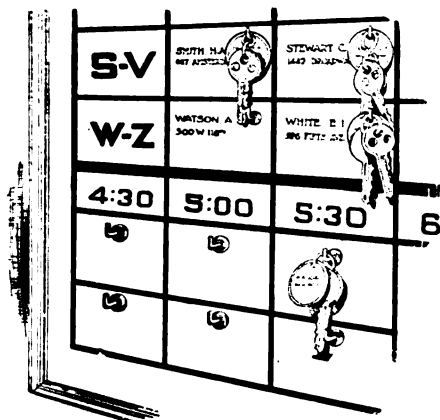


Fig. 2—Corner of board magnified. Upper squares are for owner's tags and lower ones denote time cars are called for or delivered

the crankshaft out of line a slight amount.

Then remove the crankshaft and you will note that the high spots on the bearing surfaces are covered with blue. Remove these high spots very carefully with a scraping knife, which may be purchased for this purpose, being careful not to cut so deeply that the high spots will give way to low spots.

Then put some more blue on the crankshaft and place it back in position, bolting on the bearing caps. In this way, more high spots will be indicated, although these marks will not be so high as the previous ones and will be more uniform. Then remove these high spots and do the job over and continue to repeat the operation until the spots are very fine and uniform all over. Then you may consider that the bearing has a perfect surface.

Before attempting to scrape the bearings, it is well to note whether the crankshaft journals are sufficiently smooth and round and they should be carefully examined and possibly measured with a caliper to determine this point.

The connecting-rod bearings are fitted in a similar manner.

When the job is finished, shims .001 in. thick should be placed between the bearing caps to allow sufficient clearance for the oil film.

Getting Garage Business

Editor Motor World: Could you give me written forms of letters that I can send out to customers and to follow up on?—David Siedeman, Newark, N. J.

Answer.—Why do you not try sending out nicely printed announcement cards instead of form letters?

We suggest copy for three of these as per enclosures. These you can have made by your printer and get a quantity, according to whatever your needs are.

Books on Salesmanship

Editor Motor World: Will you kindly advise if you know of a practical course or series on salesmanship.—Melvin I. Orms, Hurley, S. D.

Answer.—The Sheldon School of Salesmanship, Chicago, and the International Correspondence School, Scranton, Pa.,

have good courses in salesmanship, although we cannot tell you very much about either because we have never taken them.

We suggest that you investigate any course well before taking it, because you are tying up quite a lot of your time.

A good course will be a wonderful thing for you.

There are a good many books on advertising and selling, some of which are good and some of which are not worth shelf room.

The A. W. Shaw Co., Chicago, which publishes System, gets out a small set of books on the Knack of Selling. These are very good.

Walter Dill Scott has a book on the Psychology of Advertising, and there is Salesmanship by Hoover, and many others.

THREE BUSINESS-GETTING CARDS for the Garageman

The Siedeman Garage has been opened at 410-12 South Orange Avenue, Newark, and you are invited to visit it and consider it as the future repository of your car. We maintain a corps of capable mechanics at all times and we are well equipped to take care of your car. The building is modern and fireproof and we have an adequate stock of accessories and supplies. Drop in. Get us located.

DAVID P. SIEDEMAN.

Siedeman Garage
410-12 South Orange Avenue
Newark, New Jersey

A set of tire chains should be in your car before you drive far out of the city. You may strike a soft spot somewhere and spend half the afternoon getting out. And several other touring conveniences are just as handy if not as necessary.

Our stock of motoring goods is quite complete. The tire chains will cost you \$—. And there is a collapsible water pail at \$—, and lots of other things that you may need. We enjoy having visitors look around. Come in any time.

DAVID P. SIEDEMAN.

Siedeman Garage
410-12 South Orange Avenue
Newark, New Jersey

You can't be too exacting in selecting the garage where your car is to be cared for. I don't suppose there ever was anything perfect, but I do believe the new Siedeman Garage is about the best in Newark.

It is modern, fireproof, has skilled mechanics, is equipped to render A-1 service—and is located conveniently to the section in which you reside.

We have several features in garage construction that we should like to have you see. Drop in and look them over.

DAVID P. SIEDEMAN.

Siedeman Garage
410-12 South Orange Avenue
Newark, New Jersey

S W Stern 150 W 80th St	
Car Owner's Name _____	
Carfare _____ Address _____	
Delivery of Car _____ Driver's Name _____	

Fig. 3—Individual card which is stamped when driver leaves and returns

THE LAW

As it applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions.
Always send copies of contracts, notes, etc., to which you refer.

By George F. Kaiser

Broke Building Contract

Editor Motor World: I made a contract with a builder to put up a garage for me, 50 x 100, within 2 months. It was to have been completed and ready for occupancy Feb. 1, 1917. It will not be ready before April 1.

What is the best way to demand my money back that I gave him as a security for the term of years that I made a lease on?

Can I sue him for the time that he has failed to live up to his contract?

Can I sue him for the business that I have lost during the past two months?—D. D. J. East Orange, N. J.

Answer.—A dealer certainly has a cause of action against a builder when he fails to complete a building in the time prescribed in his contract.

Whether or not he can recover damages for the delay, however, depends on the particular facts in each case, so we cannot say here whether or not you could recover a judgment in your case, as you do not state all the facts necessary to base an opinion on.

You can sue, of course, for failure to have the building completed on time and also for your lost profits, but whether or not you can recover judgment, depends on the facts in your case.

Garage Storage Contract

Editor Motor World: Will you please send me the following; several forms of garage storing contracts, (etc.).—Charles P. Bogart, Ekblom Motors Co., Inc., 362 Warburton Ave., Yonkers, N. Y.

Answer.—The following forms of storage contracts are in use to-day. The first is for a car on "live storage" and the second form is used when a car is taken in "dead storage."

April 1, 1917.

Motor Service Corporation:

You are hereby directed to accept for storage (Marmon touring car bearing Penna. License No. 1000/1916) for the period (Oct. 1, 1916-Nov. 1, 1916), and from month to month thereafter until my account is closed, at the monthly rate of (\$25) per month, and to repair, replenish and furnish the same with gasoline accessories, etc., per my orders from time to time given, it being understood that you are to have a lien for your charges which is not lost by reason of the car being removed from your possession, and that you will not be held responsible for loss or damage sustained by reason of fire while the

property is on your premises.

Signed Owner.
Accepted by Motor Service Corp.,
By As President.

Witness

The receipt of one five-passenger car, 1917 model, bearing New York license No. 999, is hereby acknowledged together with the appended extras and accessories:

No claim for storage on this receipt will be recognized after 4 days from receipt of goods in warehouse.

This storage receipt is not negotiable.

Goods are not insured unless so ordered by owner.

Not responsible for moths or checking of panels, but every precaution will be taken to prevent them.

Responsibility of the undersigned for any piece or package enumerated in schedule including contents of same is in any event limited to the sum of \$50, unless the value thereof is made known at the time of storing and receipted for on the storage receipt. An additional charge will be made for a higher valuation.

It is hereby agreed that a charge of \$10 per month, beginning April 1st, 1917, shall be paid to the Motor Service Corporation before the cars, extras and accessories set forth above shall be released from its custody.

Dated April 1, 1917.

..... Owner.
.....
Motor Service Corporation.
By

Ohio Fire Liability

Editor Motor World: Kindly inform what the Ohio State law is, if any, regarding our liability for automobiles which are damaged by fire when stored with us. We have no notices or signs referring to our liability in any case, such as theft, fire, etc.

Also we have two automobiles stored with us, one three months and the other about six months. Both carry storage rates up to date for a greater amount than the value of the cars. We are unable to reach the one party and the other has not committed himself. What would you suggest doing, and what are we at liberty to do?—Commercial Motor Sales Co., Cincinnati, Ohio.

Answer.—A garageman's liability for loss of cars through fire depends on whether or not he used ordinary care to protect the property from loss of that kind. If he did he is not responsible; if he did not he is responsible.

It is quite usual to put up signs reading, "Not Responsible for loss by Fire," and it is not a bad idea to put up such signs although I do not think they relieve garagemen from any legal responsibility.

Ohio, as far as I can find, has no garagemen lien law.

Accessory List Included in Garage Storage Contract

Annunciator
Arm straps
Apron, storm
Batteries, dry
Batteries, storage
Board, floor
Board, heel
Broom, whisk
Bulbs, electric
Buttons, push
Carpets, inside
Carpets, outside
Cigar lighter
Clocks
Covers, dust
Covers, slip
Curtains, partition
Curtains, side
Curtains, silk
Curtains, storm
Cushions, foot
Cushions, pillow
Cushions, seat
Dome light
Footrest, brass
Foot warmer
Glass Frames
Glass Handles, door
Handles, pillar
Hat rack
Hat, cocoa
Mechaphone
Robe, carrier

Seats, extra
Speaking bulb
Speaking mouth piece
Speaking tube
Switches
Top, extension
Top, envelope
Top, Victoria

TOILET CASE

Ash receiver
Card case
Cigar case
Maps
Manicure set
Mirror
Note book
Pad
Pencil
Perfume bottle
Vase, flower
Watches
Umbrella holder

WEARING APPAREL

Boots
Caps
Coats, duster
Coats, leather
Foot warmers
Robes
Gloves

Goggles
Trousers

MISCELLANEOUS

Battery box
Bumper, front
Bow rests
Caps, axle
Coil sparks
Fenders
Horn, bulb, tube
Horn, Klaxon
Horn, Siren
Knuckle covers
Keys
Lamps, dash
Lamps, head
Lamps, pillar
Lamps, tail
Lamp covers
License Pad
Magneto
Mats, linoleum
Mats, rubber
Meters, speed
Mirrorscope
Radiator cap
Shock absorbers
Straps, hood
Tank, gasoline
Tank, Prest-O-Lite
Tire chains
Tire covers
Tires, extra

Tires, extra mounted
Tires, inner tubes
Tire pumps
Tire tools
Tool box
Trunk
Trunk covers
Trunk rack
Trunk straps
Wheel rims
Windshield, glass
Windshield leather

TOOLS

Bits
Bolts
Drills
Files
Grease can
Hammers
Jacks
Oil can
Oilers
Oil gums
Pliers
Polish
Repair kit
Snark plugs
Straps
Screwdrivers
Wrenches, monkey
Wrenches, special
Wrenches, rim
Wrenches, hub

Mackbuilt Is 1,500 lb. Truck by Pioneer

Attractive Lines—Conventional Design
—Pneumatic Tires—Price \$895

New Manufacturers' Representatives

DETROIT, March 19—Compradores, Inc., has been formed by J. M. Lassen and R. T. Brodhead to represent a number of manufacturers. They will handle the product of the following companies: Primolite Co., Indianapolis; Detroit Gauge & Metal Stamping Co., Detroit; Fulton Greuter Co., Cincinnati; Detroit Motor Lock Co., Detroit.

Picard Is White Star Distributors

NEW YORK, March 19—A. J. Picard & Co. will be Eastern distributors of the products of the White Star Refining Co. Frank J. Ryan, sales manager of the White Star Co., has just closed the deal. The Boice-Perrine Co., Boston, will distribute the White Star products throughout New England.

MACKBUILT SPECIFICATIONS

Capacity, lbs.	1,500
Price	\$895
Wheelbase, in.	115
Tires, front	34 x 4
Rear	35 x 4 1/2
Bore, in.	3 3/4
Stroke, in.	4 1/4
N. A. C. C., hp.	22.50
Gear-ratio in high gear	6-1
Final drive	Bevel

MACKBUILT is the name of the new 1500-lb. truck being produced by the Metropolitan Motors, Inc., New York City, after William C. Mack, the president of the concern and formerly of Mack Bros., pioneer truck builders. A single chassis of conventional design is built, having bevel drive and pneumatic tires, for fast delivery work.

It is attractive looking with its hood set well back of the axle, with easy tapering lines, a passenger-car type radiator and smooth fenders curved on a large arc, to emphasize the low lines of the vehicle and to give an expression of speed.

The engine is a block-cast L-head design 3 3/4 x 4 1/4, with valves to the left, the camshaft, tappets and oil pump being mounted in a separate casting bolted to the side of the crankcase. Gearbox and clutch are in unit.

Thermo-syphon water circulation is used, the radiator having a cellular core with a sheet-metal casing. An extension tank is attached to the inside top of the radiator to increase the water capacity.

The Rayfield carburetor is fed by gravity from a tank beneath the seat. No governor is fitted, as the vehicle is made for speed.

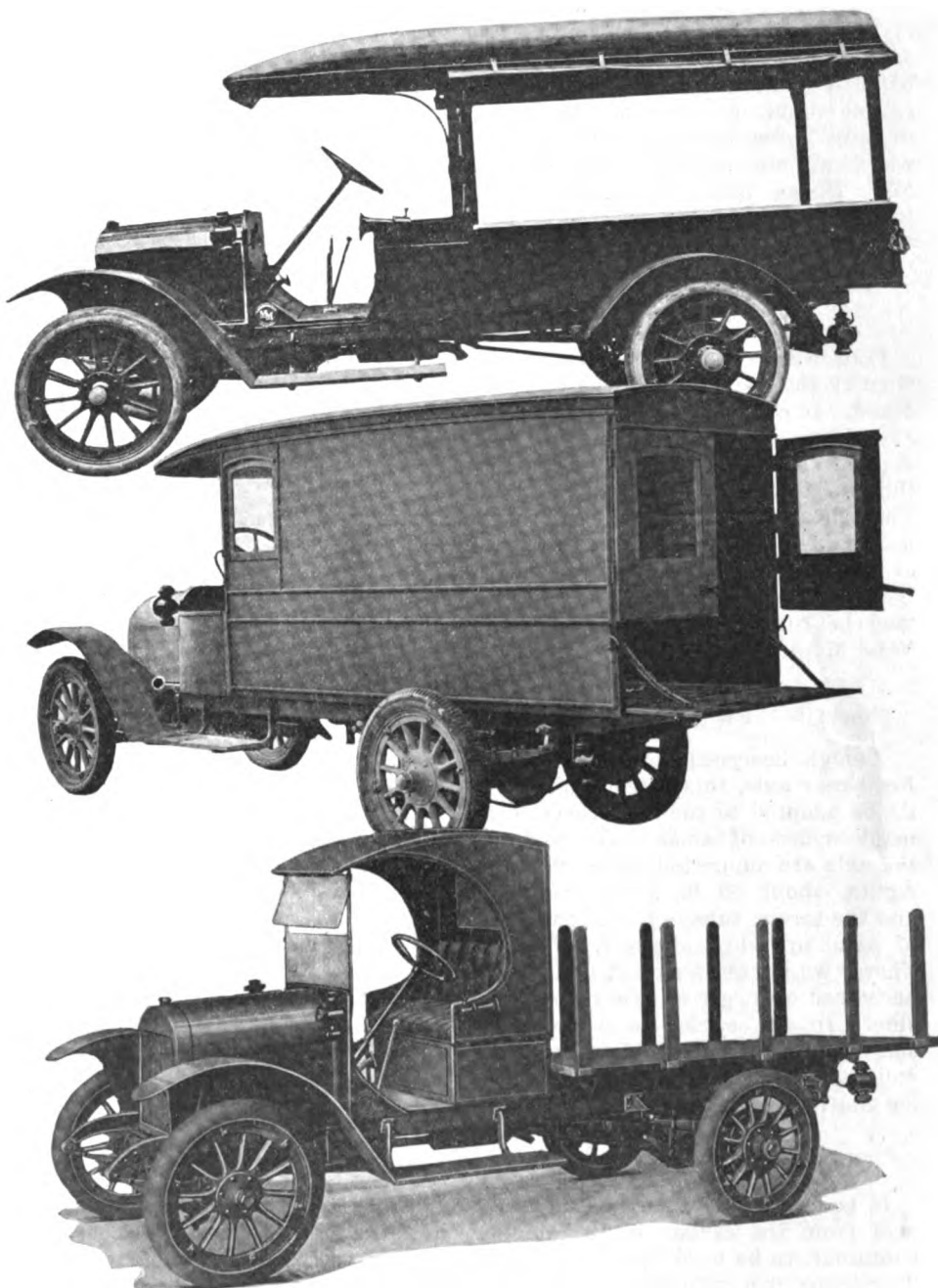
Ignition is secured from a Dixie high-tension magneto, with hand spark advance.

The clutch is a two-plate type faced with asbestos-wire fabric and running in oil. The gearset affords three speeds on the selective plan. Drive to the axle is by a shaft with two universals. The axle is of cast steel and is fitted with a torque arm. Propulsion is taken by the semi-elliptic rear springs.

Brakes are both on the rear wheels, the foot brake external and the hand brake internal. Beam eveners are used. A pressed-steel frame with integral front spring-horns is employed. The wood wheels are fitted with Firestone quick-detachable rims. Front tires have plain treads and the rear ones are non-skid.

The steering wheel is at the left, without any levers either on the wheel or column, the throttle being controlled by an accelerator and the spark by a dash lever. This lever is mounted on a plate which also carries a carburetor air adjustment, both being plainly marked as to direction of action. The hand levers are mounted together on a flush plate of bright metal, both being of the ball-jointed type. This is made possible in the case of the brake lever by placing the ratchet below the floor, out of sight.

An extra demountable rim and a mechanical horn are part of the equipment.



Three widely varying styles of bodies sold with the Mackbuilt 1,500-lb. chassis

Repairshop Shortcuts

From The Motor World Roadman

(No. 1134) TRAVELING CRANE

This crane is particularly adapted to shops that have ceilings that do not readily permit the attachment of a chain block. It also permits the car to be worked on from any position in the shop, as the castors render it portable. It comprises a framework, carrying the chain block, and supported on four uprights. The engine may be lifted from the car and carried to the engine stand, or a car may be moved in any direction, even though the wheels are not in place.—R. H. Brown, Fort Dodge Auto Co., Fort Dodge, Iowa.

(No. 1135) WHEEL PAINTING STAND

Four wheels may be handled at one time by the use of this wheel-painting stand. It comprises a cast-iron base, supporting a pipe standard. This standard carries a piece of round stock that in turn carries two cross pieces. The wheels are hung on these cross pieces, in the manner shown. Any one of the four wheels may be swung in front of the painter, and the wheels may be rotated into any position.—Velie Motor Vehicle Co., Moline, Ill.

(No. 1136) REAR AXLE STAND

Though designed for work on the Ford rear axle, this stand could readily be adapted to the requirements of many makes of axles. The ends of the axle are supported on notched up-rights, about 30 in. from the floor, and the torque tube is placed on either of two uprights similarly notched. These two uprights permit the axle to be turned over, giving access to either side. In the center is a diamond-shaped shallow tray, holding the tools and parts.—S. R. Sithers, Barrs Service Station, Davenport, Iowa.

(No. 1137) CARBOY HOLDER

It is difficult to transfer sulphuric acid from the carboy to the smaller container, to be used in battery work. This transfer may be facilitated by the use of a tilting holder, as shown. It

consists of a box, holding the carboy, and pivoted on standards. These pivots are so placed that the carboy assumes the upright position when released, but may be readily tilted to pour the acid out. It may be locked in the upright position by a drop catch.—J. P. Hand Co., Willard Service Station, Davenport, Iowa.

(No. 1138) UNDERCUTTING HIGH MICA

Due to the difference in hardness of the mica and copper in commutators, unequal wear results, causing imperfect commutation. The high mica may be removed in a lathe, as illustrated. The armature is put in a lathe and turned to the desired finish, after which a special tool is placed in the tool post and each section of mica undercut using the lathe as a planer, moving the tool by the lateral feed. When properly undercut, the mica has the appearance of that shown in the sketch.—G. L. Illingworth, Wataga, Ill.

(No. 1139) TOWING TRUCK

Cars disabled by the loss of both or either front or rear wheels may be towed to the repairshop by the aid of this truck. It is a square wooden box, bolted together and mounted on farm implement wheels. The towing pole is a 2-in. pipe, going through the box, and attached to it by pipe flanges. Inside of this pipe is a bar, the two being fastened together by a steel pin. In the case of a front axle break, the towing pole is telescoped and pinned in the short position. With rear axle breaks, the pole is extended. In each case the car rests directly in the truck box. The truck is attached to the towing car through a heavy coiled spring.—R. E. Beedee, Interstate Auto & Supply Co., Davenport, Iowa.

(No. 1140) CORK INSERT TOOL

This is a tool for inserting corks into the face of a cone type cork insert clutch, such as is used on the Pierce-Arrow. A hollow tapered brass plug is held over the hole in the clutch

face by a hooked lever, in the manner shown, and the cork pushed into place with a steel plunger. The brass plug may be shifted, so as to rest over any of the cork openings, and the pressure may be regulated by shifting the thumb screw.—Frank Petrick, Masons Garage, Davenport, Iowa.

(No. 1141) PORTABLE TOOL BOX

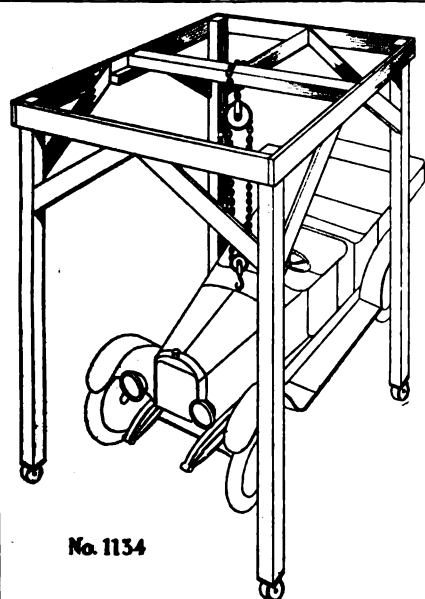
This tool box is made integral with its base, and is mounted on castors, so that it may be taken to the side of the car upon which the work is to be done. The tool box proper is shallow, and contains a space for the more common tools, in addition to several small compartments for miscellaneous parts. The more valuable, precise and less frequently used tools are kept in a drawer beneath the box, which is locked unless in use.—Frank Petrick, Masons Garage Co., Davenport, Iowa.

(No. 1142) ANTI-FREEZE CONTAINER

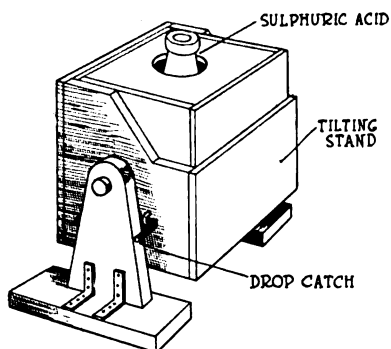
The anti-freeze solution in the radiator is often thrown away, when it is necessary to remove the radiator to get at some part of the engine. By the provision of a container, as shown, this solution may be saved, and replaced in the radiator on assembly. Dirty solution will settle, and the dirty part may be drawn off first and thrown away.—R. H. Brown, Fort Dodge Auto Co., Fort Dodge, Iowa.

(No. 1143) PARTS CLEANING

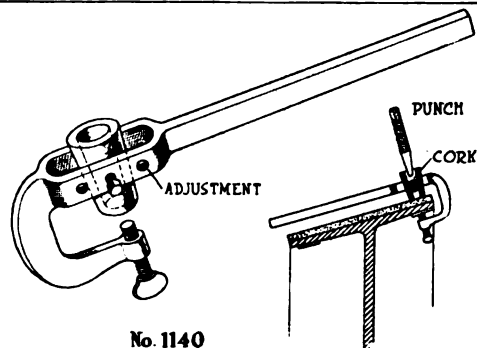
An old oil container may be made into a spray cleaning device. Through the top of the can a brass pipe is soldered, as shown. The nozzle of this pipe is connected by a small tube to the bottom of the oil can, and the opposite end is attached to the air line. The air, in passing through the pipe, past the end of the small tube, draws the solution from the can and forces it onto the part in the form of a spray, quickly softening and removing the dirt and grease. Either gasoline or kerosene may be used as a cleaning solution.—Frank Petrick, Masons Garage Co., Davenport, Iowa.



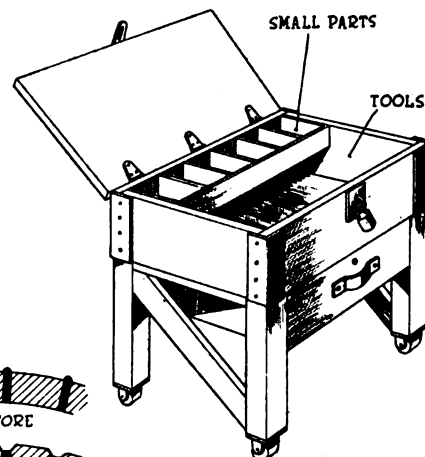
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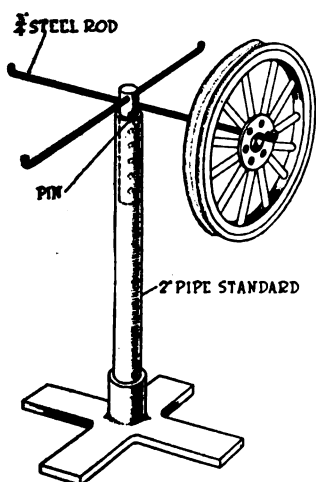
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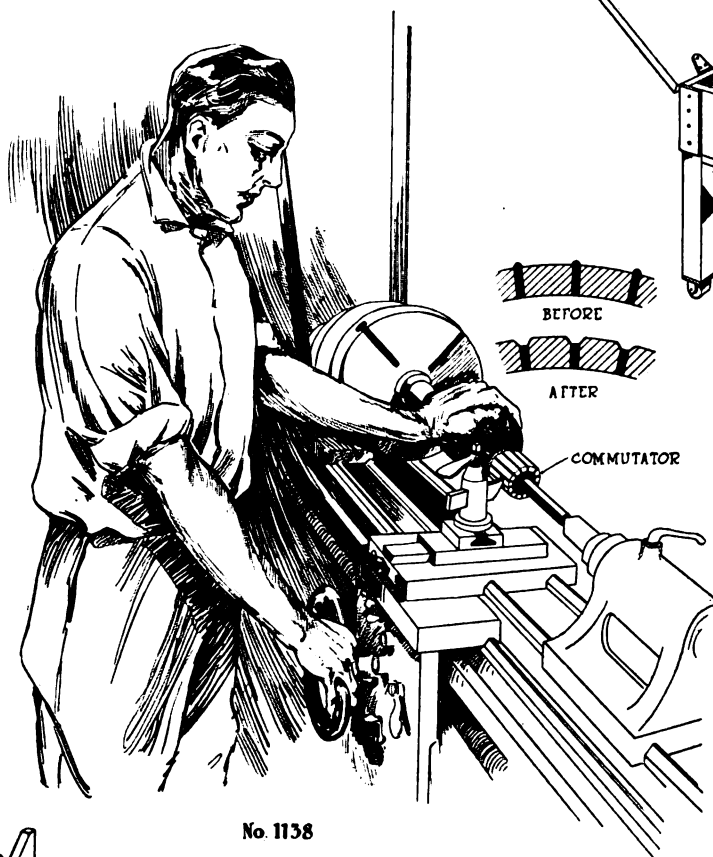
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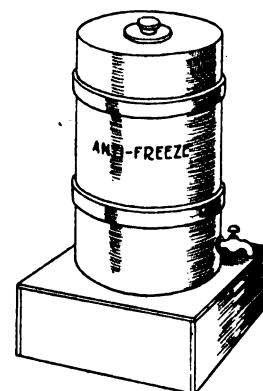
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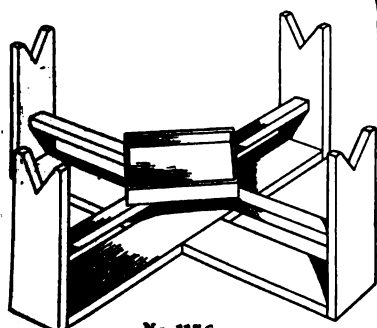
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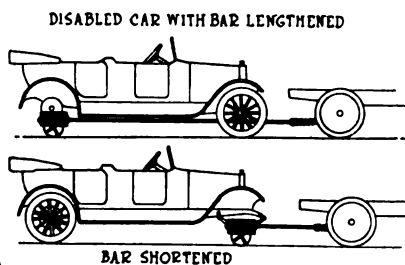
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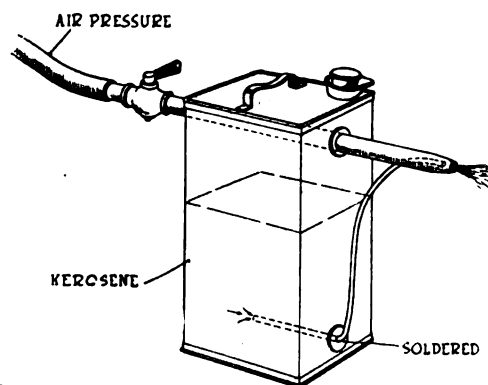
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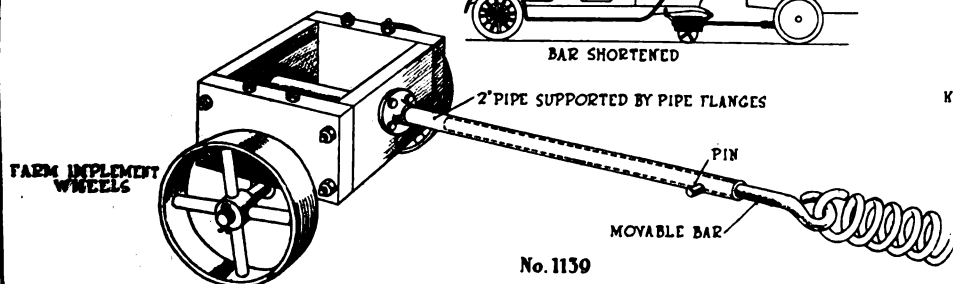
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BAR SHORTENED

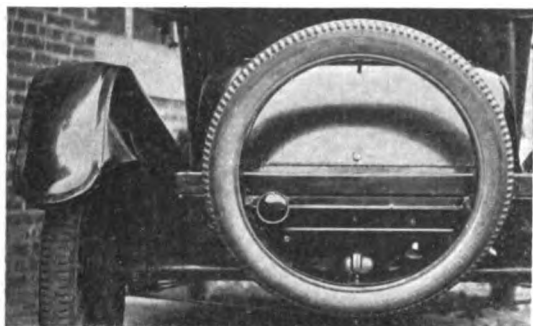


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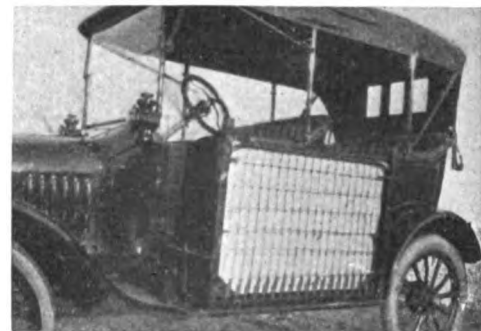
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□ □ Accessories □ □



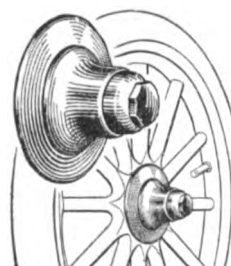
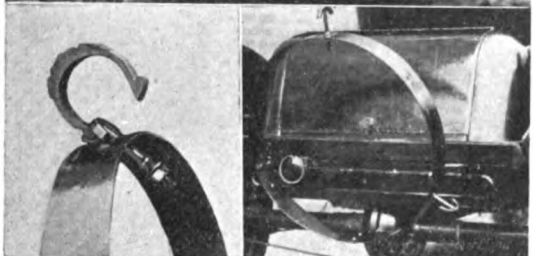
HANDY CAMP COMBINATION

It consists of a folding iron bed, mattress and a tent large enough to house the bed. There is also room for bedding, quilts, cooking utensils and suit cases. The bed is mounted on the running board, and when in use is supported at the head by the running board. Price \$20.—Tourist Auto Equipment Co., Dahlgren, Ill.



PARKER TIRE CARRIER

An unusually neat tire carrier for use on cars not equipped with demountable rims. The tire is held in place on the rim carrier by three lugs as shown. It has been patented by Frederick G. Parker, Portland, Me., a traveling representative of the Chevrolet Motors Co. Price, Chevrolet 4-90, \$3.26, prepaid—Portland Tire Carrier Co., P. O. Box 764, Portland, Me.

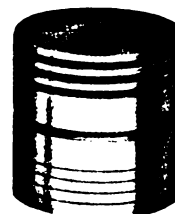
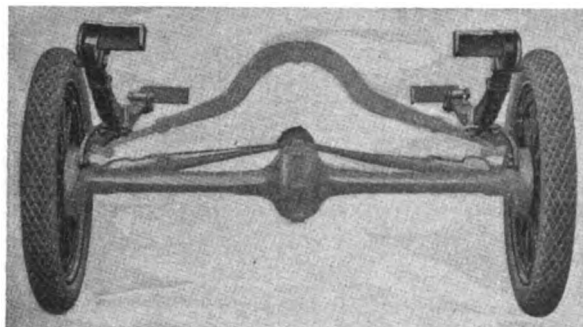


OSPECO FLANGED HUB CAPS FOR FORDS

Ford hubs made in two styles, one incorporating the hub cap nut, and the other using the standard Ford hub cap, and being held in place by it. Complete cap and flange, per set of four, \$3.75. Flanges only, \$2.50.—The Ospeco Mfg. Co., Inc., Ford Bldg., Detroit.

SAMSON UNIT FOR FORDS

An attachment which permits the addition of two full elliptic springs to the regular Ford transverse spring, thus greatly increasing the load capacity of the chassis. Heavier wheels with Hess-Bright bearings are provided, thus the whole rear running gear is strengthened. Attachment complete with 31 x 4 non-skid tires and inner tubes, \$115.—Selden Mfg. Co., Detroit.



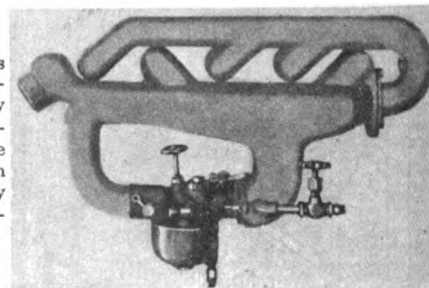
DYER PISTON FOR FORDS

A light, cast iron piston, weighing 1 lb. less than the standard Ford design, with not over 2 oz. variation in weight in a set. It is made in standard and the following oversizes: .0025, .005, .01, .015, .029, .03125, .040. It is sold complete with wrist-pin and piston rings. Price \$1.75 each.—G. H. Dyer Co., 155 Brookline St., Cambridge, Mass.

BURN-OIL FOR FORDS

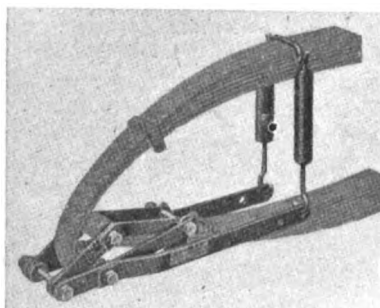
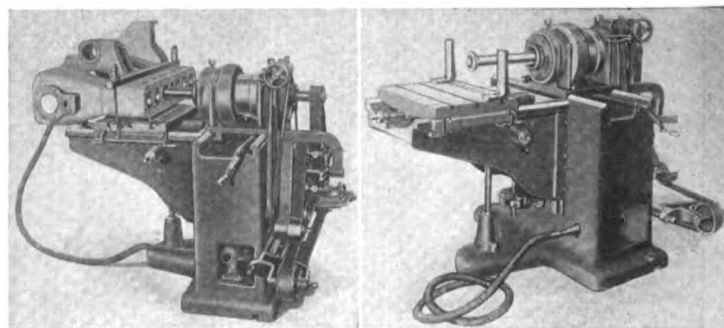
A combined intake and exhaust manifold which enables the use of kerosene instead of gasoline and connects with the regular carburetor. There is an exhaust jacket surrounding the intake manifold

passage so that the fuel is heated to sufficient temperature to form a satisfactory mixture, it is said. In addition, the air brought to the carburetor is preheated in the manifold. It is readily attached. Price \$30.—Burn-Oil Device Co., Peoria, Ill.



OLSON CYLINDER GRINDER

Designed for grinding cylinders, primarily. It can grind holes from 2 1/4 to 8 in., the maximum capacity of head and spindle in the cross adjustment is 27 in., the maximum travel of the table or the length of hole that can be ground is 15 in., and the maximum vertical distance from the top of the table to the spindle center is 9 in. It will accommodate a single cylinder or a six-cylinder block equally well.—E. A. Fuller Sales Co., Madison, Wis.



CLIMAX SHOCK ABSORBER

A lever type which takes the place of a spring shackle and in which the ends of the levers are attached to long coil springs. Price \$25.—Climax Shock Absorber Co., Benton Harbor, Mich.

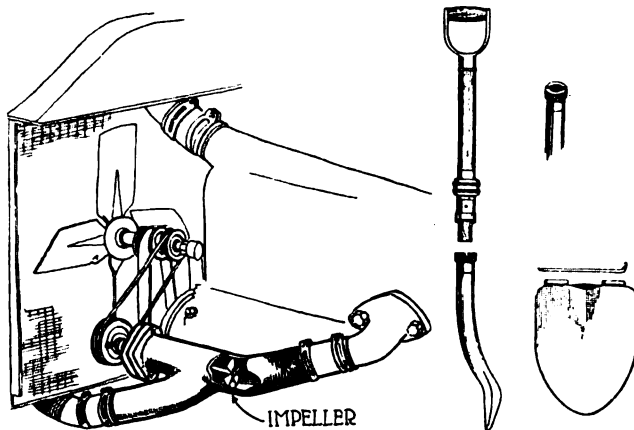


SIZE 1 1/4 X 2

EVER-READY GUMMED LABELS

Printed labels, gummed and perforated and all ready for use, are put up in rolls so that a label may be readily torn off when desired. Prices run from \$1.25 to \$8 per 5000, according to the area, which

varies from 1 to 24 sq. in. Labels on a roll are easier to handle and stand use better. Single labels have a tendency to become mused and to roll. It is also quicker to attach these labels—Ever-Ready Roll Label Co., 419 W. 42nd St., New York.



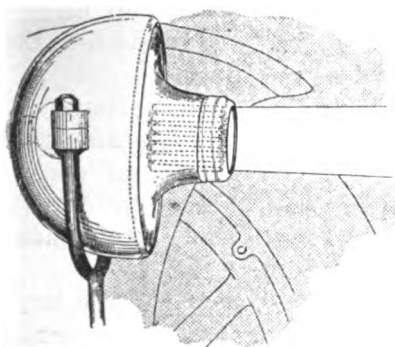
SIR-KU-LATOR FOR FORDS

A pump for Fords. The lower hose connection is replaced by a cast iron pipe containing a three bladed propeller driven by a flexible wire belt from a split pulley at the rear of the fan pulley. The attachment may be made in about 10 min. by anyone, the only necessary tools being a screwdriver. Though benefiting the per-

formance of the Ford pleasure car, it is particularly valuable to the Ford commercial car, or converted tractor. Price \$2.50.—R. B. L. Co., 265 E. Jefferson Ave., Detroit, Mich.

KINZEL SHOVEL

A take-down shovel which may be separated in three pieces and compactly carried. It may be assembled in a moment. Price \$2.50.—Ed Kinzel, Albany, N. Y.



WAY-A-HEAD LENS

A non-blinding automobile lens built like nineteen telescopes; in other words, the beams come out of the cylindrical holes in the center and illumination directly in front of the car is obtained by frosted glass surrounding these holes. Price, per pair, 5 to 9 in., \$5; 9 1/4 to 10, \$5.50; 10 1/4 to 12, \$6.50; west of Rockies, 25 cents per pair extra—Way-A-Head Light Co., Commonwealth Bldg., Pittsburgh, Pa.

DOTTL SPRING AND FRAME SUPPORTERS

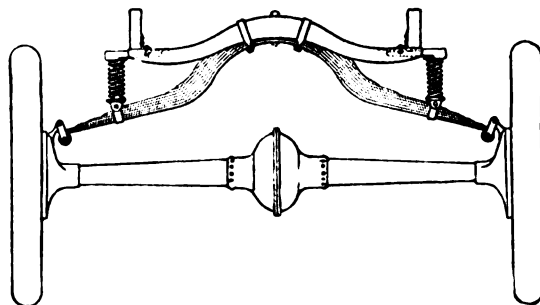
By supporting the ends of the rear cross-member of the Ford frame on two heavy coiled springs, the capacity of the Ford is increased to 2000 lbs. Installation may be made in 30 min. The price per set is \$8.00.—Dottl Mfg. Co., Madison, Wis.

SMITH'S DUPLEX PRIMER AND DECARBONIZER

Mounted on the manifold and controlled from a pull rod on the dash. In one position of the rod raw gasoline is drawn into the manifold to provide easy starting and in another position water is drawn from the radiator and sucked into the manifold, this feature preventing the formation of carbon, it is said. Price \$10.—Irving M. Shaw, 80 Fifth Ave., New York.

LONG DISTANCE SPOT-LIGHT

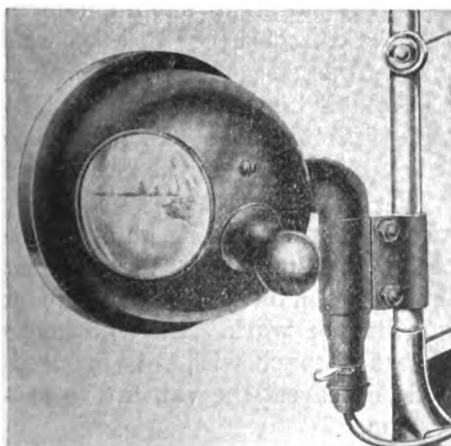
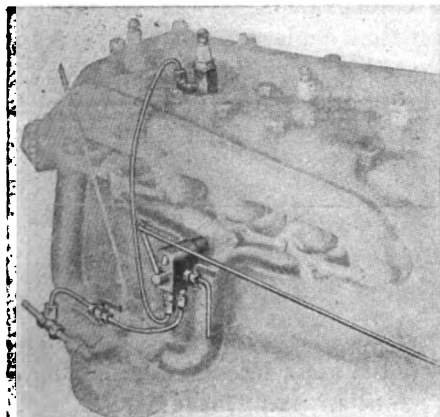
Long-distance illumination is the feature of the new 6 1/4-in. spotlight. The focusing adjustment is accessible and the switch is located in the stationary part of the bracket. A special feature is the smooth-turning, stay-put joint, which allows the lamp to be readily placed in any position so that the mirror may be used in the daytime. The lamp is finished in black with a nickel door. Nitrogen bulbs are furnished. Price \$7.50—Gray & Davis, Boston.



STEVENS REPAIR TAG

This card gives a complete record of a car undergoing repairs in the shop. The front side records the time the car was received and when wanted, the owner's name and address and the name of the car and the license number, as well as the estimated cost and the name of the man who took in the car. There are six lines for writing the instructions for doing the repair work. On the other side of

the card the time spent on the car and the material used are recorded. The cards are numbered serially and there is a repair check, numbered to correspond, at the bottom, which may be torn off and given to the owner. The price of these tags is \$3 per 1000. This tag is patterned after one which Motor World printed some time ago as a type suitable for use in the repairshop.—Stevens & Co., 375 Broadway, New York.



Editorial Observation

Used Car Prices

WITH this issue Motor World commences publication of its USED CAR PRICE RECORD. The first tabulation, covering about 25 big production makes of cars and based on data collected in the principal trade centers, appears on page 8 and those that follow.

It is the object in publishing this table each week to give dealers a service which they need. Almost every other trade allied with human needs has its market reports of current values of commodities. Motor World USED CAR PRICE RECORD will be to the motor car trade what market reports are to other businesses.

There can be no gainsaying the fact that successful, profitable business requires that appraisal and allowances prices on used cars must be based on resale prices. This is a business axiom.

That dealer are willing and anxious to base allowances on resale prices goes without saying for such dealing means profitable dealing.

The great difficulty has been for dealers to get actual current resale prices in definite trade centers.

This has been the gap that has been bridged by the rickety and unsafe plank of guesswork.

Motor World hopes to bridge this gap with a thoroughly safe and sound structure which will lead to the fair profit on the handling of used cars which the business justly deserves.

That this Used Car Price Record is perhaps not quite as complete as might be desired is admitted. But it is hoped that with a continuation of the co-operation that already has been extended by dealers, it will continue to grow and expand until its completeness leaves nothing to be desired.

The development of the Record depends to a large extent upon the willingness of dealers to co-operate with Motor World by furnishing promptly lists of prices brought by used cars in their respective markets.

In asking for this co-operation, Motor World does so with the conviction that dealers themselves wish it to be extended and that this work which Motor World is carrying on will be of great and lasting value to the retail trade.

Study Salesmanship

EACH year sees every business more scientific progressive and efficient. This applies especially to salesmanship of today. More attention is being given at this time to salesmanship than in a long period of the past.

Salesmanship clubs are being formed and operated in many cities. The work is being fathered by a salesmanship organization which was formed in Detroit a year ago and which meets again this summer. Big men have taken hold of the problem in an earnest way.

Salesmanship courses are being pushed by several schools, and the number of books on the subject is

increasing. It indicates an awakening to the importance of salesmanship.

With this interest being taken in interested quarters there is a big opportunity for the dealer and salesman to get into the swing of the movement and himself become a student of salesmanship, not that he may help make it more of a science but that he may become a better salesman.

Even a small town can have a salesmanship club, for there are many in every community who would benefit by it, even though their business be not selling. The ideas that come through and from salesmanship discussions are bene-

ficial in many ways. The man who is a good salesman generally is efficient in many other ways.

If the dues in an existing salesmanship club should be, say, \$10 a year, the salesman should not believe he cannot afford it. One sale in this business means more than \$10 and if one idea from a salesmanship club helps make one sale it is a big return on the money.

The movement now under way means that there are going to be better salesmen. It means that there is yet a lot to be learned about this line of work. He who keeps closest in touch with this progress will be nearest the van in the procession.

My Best Sales Letter

It will be printed in

The Summer Merchandising Number

WHAT is the best sales letter you have ever written? Which one of all your various letters has given you the very best results, judged from the standard of actual sales made?

During the year gone by Motor World has seen some mighty good sales letters, many of them written by small town dealers who are never heard of outside of their own towns.

Some of these dealers have written sales letters that *simply must sell cars*. One dealer sent out a form letter to 87 prospects within a radius of 25 miles of his salesroom.

The next morning prospects commenced to troop into his salesroom. Most of them carried the letter with them.

The dealer sold fourteen cars in a few hours on this letter. Almost unbelievable, isn't it? But it's true.

Motor World believes that there are other sales letters just as good as this one being used. We want to publish some of them in the Summer Merchandising Number of Motor World, out April 25.

Please send the Editor the best sales letter you ever wrote.

With the letter send another and tell us about the sales letter. Give this information:

- 1—Where did you get the idea for the letter?
- 2—How many did you send out?
- 3—Did you send it to your regular prospect list?
- 4—Or did you send it to a special list?
- 5—How many cars do you credit this letter with selling for you?

Motor World wants to print a bunch of good letters. Most likely some of them will help *you* write an *even better letter next time*.

So send along your best one.

And with it send a photograph of yourself, too, so we can print that with the letter.

The RETAIL NEWS.

EAST

The Garford Co., Boston, Mass., has appointed A. R. Thompson manager.

The Standard Motor Car Co., Boston, Mass., has been formed by John S. Campbell, Jr., and S. S. Atwell, both of Pittsburgh, to handle the Standard in New England.

The Bangor Motor Co., Bangor, Me., has purchased the Ellsworth Garage, Bar Harbor, and the McCann property adjoining its Bangor salesroom, which gives the company control of three garages.

The Philadelphia Storage Battery Co., Boston, Mass., has moved into a new building on Brookline Avenue.

The Willard Battery Co., Boston, has moved to a new building on Beacon Street.

The Studebaker Corp., Boston, has appointed R. J. Miller of Portland assistant manager.

C. M. Foster, Boston, accessories dealer, has moved to larger quarters on Columbus Avenue.

The Alvan T. Fuller Co., Boston, has appointed Robert B. Parker general manager.

W. S. Sandeman, Boston, Mass., has been appointed New England representative for Rayfield carbureters.

The Bolce-Perrine Co., Boston, has been made New England distributor for White Star oil.

The Bolce-Perrine Co., Boston, has been appointed New England distributor of Dreadnaught tires.

The R. E. Taylor Corp., New York, has placed W. E. Mears in charge of its New England branch.

J. B. McMahon, Jr., and N. B. Wallis, Boston, have taken on the Mackbuilt truck.

The Anthony-Pilling Co., Boston, has been reorganized to handle the Marlon-Handley line.

The Automobile Necessities Co., Boston, has been organized to handle the Wilmo manifold in New England.

The White Co., New York, White dealer, has moved from Broadway and Sixty-second Street to Park Avenue and Fifty-seventh Street.

The Allen Auto Specialty Co., New York, will move to 16-24 West Sixty-first Street on May 1.

The Phoenix Garage Corp., New York, will open an eighty-car garage, April 15, at 227 East 125th Street. The officers are: President, Edward J. Wenk; treasurer, Thomas J. McElhinney; secretary and manager, I. La Pidos, who has had experience in garage business. The company will use the Motor World Simplified System of Accounting.

Charles Andres, 185 John Street, Bridgeport, Conn., has been appointed service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

F. A. Reeves, High Bridge, N. J., has recently signed a contract with the Philadelphia Storage Battery Co. for the sale of Diamond grid starting, lighting and ignition batteries.

The Auto Car Co. is now having erected at Thirteenth Street and Pennsylvania Avenue, Washington, a four-story salesroom and service station to cost \$70,000.

The Jennings Motor Sales Corp., Washington, which has just taken over the Apperson business, has appointed Christian Mygind general manager.

The Whaley Motor Co., 449 Weathersfield Avenue, Hartford, Conn., has added a line of accessories.

The King Motor Sales Co., Baltimore, will establish a branch in Washington. J. Stewart Smith, who has been connected with the automobile industry in New York and Baltimore for fifteen years, will have charge.

The Harrington-Hudson Co., 348 Trumbull Street, Hartford, Conn., is now occupying the entire third floor of the Ashwell Building opposite for service department.

Fisk Rubber Co. of New York's new branch at the corner of Trumbull and Chapel Streets, Hartford, is now in operation. The building was recently completed and has space for changing tires on twelve cars. The company is featuring free service.

The Owen Magnetic Car Co., Providence, R. I., has established a branch at 151 Broad Street with Nelson S. Davis as manager.

The Foster-Smith Co., 7 Dorrance Street, Providence, R. I., has doubled its space by taking the old store of the Providence Auto Equipment Company. A portion of the space will be devoted to the display of used cars.

SOUTH

R. F. DeLamar, Hawkinsville, Ga., Ford and Overland dealer, is having his large two-story building overhauled and improved. The second floor will be used for the buggy and wagon department and the entire lower floor for automobiles and accessories. A rest room is fitted up for women.

The Double Tread Tire Co., Savannah, is opening for business at 1222 Haylor Street to convert old and worn-out tires into new tires, guaranteeing a 5000 mileage. W. T. Wagner and J. M. Tousley are managers.

O'Kelly & Walker, Milburn Electric dealers, have opened at 25 Auburn Avenue, Atlanta, with a complete line of accessories.

The Price-Burroughs Motor Co., Richmond, Va., Mitchell, Briscoe and Harroun dealer, has opened a branch at Petersburg, Va.

K. S. Loois, New Orleans, La., is in charge of the tire department of the New Orleans Motor Co., Inc.

The Price-Burroughs Motor Co., Richmond, Va., has been named Harroun distributor.

M. H. Rykoski, New Orleans, La., has opened an office at 518 Julia Street as Redden truck distributor.

J. S. McNulty, Memphis, Tenn., former Federal and American League umpire, has been made sales manager for the Eugene Polk Motor Co.

The Pool & McCullough Motor Co., Atlanta, Ga., has been named State distributor for King cars. Showrooms have been opened at 311 Peachtree Street.

The Richmond, Va., branch of the National Tire & Rubber Co. has been opened at 427 West Broad Street. Henry Erlich is manager.

W. H. Joynes, Jr., Richmond, Va., has been appointed retail manager for the Price-Burroughs Motor Co.

The Dennis Auto Supply Co., Richmond, Va., has moved into a specially arranged building at 310 West Broad Street.

Hale Buggy Mfg. Co., Anniston, Ala., has been appointed service station for the Philadelphia Diamond grid battery, manufactured by the Philadelphia Storage Battery Co.

MIDDLE WEST

The Service Auto Co., Seymour, Wis., has been organized by William Beck, L. H. Waite, August Holterman and Frank Longrie, to build a garage and repairshop, ready June 1.

W. I. Seeley & J. S. Kugler, Fond du Lac, Wis., have opened a tire store and vulcanizing shop at 148 South Main Street and will handle Firestone, Goodyear and Savage tires.

The Gladstone Auto Sales Co., Escanaba, Mich., Maxwell, Hudson and Chalmers dealer, on April 1 opened a garage, salesroom and service station at 614 Ludington Street.

E. H. Rummele, Sheboygan, Wis., has awarded contracts for the erection of a two-story and basement building, 40 x 100 ft., to accommodate the overflow from his main garage and service station.

Julius Otto & Gustave Riemer, Markesan, Wis., have opened a garage and repairshop.

Garvey Bros. & Murphy, Kaukauna, Wis., have opened a garage and repairshop in the Wildenberg Building at Freedom, near Kaukauna.

Theodore Johnson, Nelsonville, Wis., Ford dealer, will erect a garage and service station to cost \$5,000.

Holmes & Co., 495 Broadway, Milwaukee, Ford dealer, will occupy the sales and service building, 120 x 154 ft., two stories and basement, being erected at Jefferson and Martin Streets by H. A. J. Upham to cost \$90,000. It will be one of the largest Ford retail buildings in the Middle West. G. E. Holmes is president and general manager.

J. W. Dalton & W. O. Keim, Portage, Wis., have formed a partnership to handle the Paige and will open a salesroom and service building in the Opera House block.

Joseph Preplitza, 389 Seventh Street, Milwaukee, is about to award contracts for the erection of a one-story fireproof garage and repairshop at Prospect Avenue and Kenilworth Place, to be 60 x 120 ft.

Burton Mitchell, Green Bay, Wis., will open a battery charging and service station at 207 Main Street, Neenah, Wis.

The Tobin Sales Co., Milwaukee, has been organized by Harry Tobin, 1009 Kinnickinnic Avenue, to handle the Ford in the Bay View district of Milwaukee.

H. W. Timmer, Waldo, Wis., has sold his repairshop and machine works to Clarence Beecker and Henry Soerens, formerly associated with the Falls Motors Corp., Sheboygan Falls, Wis.

Klinger & Mayer, Watertown, Wis., Ford dealers, have been appointed distributors of the Smith Form-A-Truck for Dodge, Jefferson and Green Lake counties.

William Van Lieshout, Kaukauna, Wis., proprietor of the Lawe Street Garage, will build a two-story addition, 50 x 150 ft., install an electric elevator and additional machinery and tool equipment.

N. C. Mason & Sons, Mount Pleasant, Mich., will erect a garage and salesroom.

Joy McCormack, Charlotte, Mich., Maxwell dealer, will build a garage and salesroom.

Ragla & Craig, Hastings, Mich., Reo dealers, have opened a new garage and salesroom.

Elmer Knapp, Lapeer, Mich., is opening a tire vulcanizing shop.

Frank M. Fluke, Battle Creek, Mich., has taken the agency for Elgin.

M. P. Bromeling, Eaton Rapids, Mich., Ford dealer, is building a new garage and salesroom.

Nensowitz Bros., Alpena, Mich., has changed its name to the Alpena Auto Co.

Ben Hasenger, Ishpeming, Mich., will open a new garage.

H. Baird, Winfield, Mich., will erect a garage.

P. J. Denn & Son, Ishpeming, Mich., have taken the Paige.

C. House, Hillsdale, Mich., has purchased the Riverdale Garage.

H. M. Richardson, Detroit, has been appointed sales manager for R. P. Gmellin, Monroe distributor.

The Becker Motor Car Co., Grand Rapids, Mich., has been dissolved and the Becker Auto Co. is now Saxon and Studebaker distributor.

The Mulliken Auto & Implement Co., Grand Rapids, Mich., has taken over the business of the Doble Implement Co. and has secured the agency for Ford.

Oscar W. Swanson, Marquette, Mich., has taken over the business of Fleury & Swanson and will conduct the Oakland agency.

H. D. Menzies, Detroit, will erect a four-story garage.

H. C. Bornch, Romeo, Mich., will operate the Central Garage.

G. Biewer & D. Dwyer, St. Clair, Mich., will open a garage.

The Eckstein-Lakle Co., Royal Oak, Mich., will build a sales and service station for Fords.

B. T. Friday, Niles, Mich., will erect a garage.

B. Hassenger, Ishpeming, Mich., will build a garage.

D. McMann, Harbor Beach, Mich., will open a new garage.

Andrews Motor Sales Co., Saginaw, Mich., has been reorganized as the Central Michigan Motor Sales Co., to handle Studebakers.

Rusch Battery Service Station, Franklin and Washington Sts., Morris, Ill., has been appointed distributor for the Philadelphia battery.

McClatchey's Garage, Canton, Ill., has been appointed distributor for the Philadelphia battery.

The Winders Motor Sales Co., Columbus, Ohio, central Ohio distributor for the Chevrolet, has been given more territory and now has seven counties. About twenty agencies have been placed. Wilbur Winders is head of the company.

The Sterling Tire Corp. has opened a branch at 5018 Euclid Avenue, Cleveland. J. J. White, formerly manager in New Haven, is in charge, and J. H. Burnet, formerly with the Herdman Tire & Rubber Co. of New Jersey, in assistant manager.

The United Supply Co., Tecumseh, Mich., will open an accessory store.

Frank E. Hathaway, Muskegon, Mich., Dodge Bros., Saxon and Paige distributor, has incorporated at \$50,000 and will hereafter be known as Frank E. Hathaway, Inc. The officers of the company are: President, Frank E. Hathaway; vice-president, Edna M. Hathaway, and secretary-treasurer, Francis R. Stevenson.

SOUTHWEST

The Tippen Motor Sales Co., Dallas, Marmion dealer, has succeeded the Fort Worth Electric & Motor Car Co. of Fort Worth and occupies its new building at Jackson and Pearl Streets.

The Dallas (Tex.) Motor Sales Co., Velle distributor, has opened a service station at 1815-1817 Young Street.

Sydney Reinhardt, Dallas, is building a \$12,000 garage at 2025 to 2033 Cedar Springs Avenue.

Beck & Parks, Dallas, have been appointed state distributors for the Lucke Universal Unit truck attachment.

The Waxahachie Buick Co., Waxahachie, Tex., has moved to its new building, which has a capacity of 28,000 sq. ft. W. E. Hipp is manager.

The City Garage & Transfer Co., Waxahachie, Tex., has moved to its new building, which cost \$12,000.

The Korker Puncture Sales Co., St. Louis, has opened a salesroom at 411 North Nineteenth Street to sell Korker Puncture Cure. Emil V. Noser is manager.

A. G. Whittaker, St. Louis, has resigned from the accessory department of the Geller, Ward A. Hasner Hardware Co. to become general manager of the Florissant Motor Co., Florissant and Warne Avenues.

A. P. Slegmund, St. Louis, and A. O. Clemen of Kansas City have been added to the Locomobile force in St. Louis.

Frank A. St. Cyr, St. Louis, manager of the Continental Auto Supply Co., has taken over the Hamilton Garage Co., in which building his store is located. The garage has sixty cars capacity.

The Motor Car Supply Co., Little Rock, Ark., has installed night service cars for Goodyear tires.

T. H. Sharp, Jr., Little Rock, Ark., State distributor for the Oldsmobile, has opened a branch in Newport, Ark., to serve Augusta, Walnut Ridge, Batesville and Searcy.

The Reconstructed Tire Co., St. Louis, is open for business at 3444 Lindell Ave., after closing for extensive repairs and installation of machinery. New and used tires are handled.

The Auto Parts Co., St. Louis, has opened a branch at 2206 Locust Street. J. C. Dolan is manager.

H. G. Warwick, Argonia, Kan., has succeeded I. E. Peer in his garage.

Andy Stanfield and Dave Trine, Altin, Kan., have sold their garage to J. T. Gaddis and Lee Mangus.

C. E. Lemon and S. D. Rutter, Arkansas City, Kan., have opened the East Central Avenue Garage.

Sickler & Bradley, Atchison, Kan., are building a garage, 40 x 60 ft.

W. T. Griffith, Hutchinson, Kan., is erecting an \$8,000 garage.

Day & McHugh, Hutchinson, Kan., are building an \$9,000 garage.

Charles Robinson, Bucklin, Kan., is building a \$7,800 garage.

Harry Pettit, Chapman, Kan., is building a 50 x 120-ft. garage.

H. E. Lyman, Clay Center, Kan., will open a vulcanizing and automobile supply station.

Goodell & Hurtig, Delphos, Kan., have opened a repairshop.

Clarence Weese, Fellsburg, Kan., is erecting a garage.

Grubb Brothers, Great Bend, Kan., have opened a repairshop.

Mr. Swank, Great Bend, Kan., has entered the automobile business of George Lans and the firm will be known as Lans & Swank.

Charles Hacker, Bethany, Mo., will move his garage soon to a new building.

W. F. Heins, Carrollton, Mo., is building an addition to his garage.

Dennis Smart, Carrollton, Mo., has bought a garage from W. F. Heins.

Homer Meade, Gallatin, Mo., Overland dealer, is remodeling the Pratt building for his salesrooms.

R. Cochran, Glasgow, Mo., owner of the Glasgow Garage & Machine Works, has installed a storage battery department.

Claud Long & Leonard Chipley, Greenwood, Mo., have opened a garage.

W. M. Sterling, Lee's Summit, Mo., is erecting a brick, 50 x 100-ft. garage.

R. C. Potter, Malta Bend, Mo., is erecting a new garage.

Ben Andrews, New Hampton, Mo., has sold his interest in the Andrews & Chipp garage to his partner, Thomas Chipp.

Fred Montman, Norborne, Mo., will erect a garage.

Hicker Bros., Prairie Hill, Mo., garage owners, are going out of business.

The L. G. Zzyen Garage, Arkansas City, Kan., is to be erected.

P. C. Redman, Abilene, Kan., is remodeling and enlarging his garage.

The Kansas Lumber Company's Ford Service Station, Belpre, Kan., is being remodeled.

The Reo Automobile Co., Emporia, Kan., will erect a garage and salesroom.

H. E. Hollenbeck, Hutchinson, Kan., is erecting a garage and storeroom to cost \$3,000.

The Atwood Mercantile Co., Herndon, Kan., will erect a brick garage to cost \$6,000.

Mr. Stanley, Harris, Kan., will open a garage.

Shapel & Russell, Iola, Kan., Jones dealers, will remodel the Majestic Theater into an automobile salesroom and repairshop.

R. W. Lovett, Bristow, Okla., is erecting a brick garage.

Beck & Whiteford, Carmarige, Okla., have purchased a garage.

Milt Thompson, Cushing, Okla., is erecting a brick garage 80 x 90 ft.

J. W. Sullins & Sons, Henryetta, Okla., Ford dealers, are erecting a garage.

The Seawright Garage, Hooker, Okla., is open for business.

Mr. Sipe, Tonkawa, Okla., is erecting a garage.

The W. C. Norris Motor Sales Co., Tulsa, Okla., has moved into new quarters on Seventh and Main Streets.

Mr. Landon, Waurika, Okla., is building a garage.

George Werline & James Berry, Woodward, Okla., Maxwell dealers, have opened the Woodward Motor Co.

The Duggan-Brown Overland Co., Abilene, Tex., has increased its capital stock to \$30,000 and will be known as the Duggan-Brown Overland Co., Inc. R. F. Duggan is president and general manager; J. E. Brown, vice-president and sales manager, and R. L. Over, secretary and treasurer.

The Beaumont Cadillac Co., Beaumont, Tex., is erecting a garage.

The Barden Electric Co., Beaumont, Tex., is erecting a service station.

Wiley James, Baird, Tex., will erect a garage.

E. I. Bruce & Elvin Sanders, Center, Tex., have bought the Fox Garage.

L. H. Krough, Cameron, Tex., has formed a partnership with John Henry Thomas, known as the Krough-Thomas Auto Co., and is located in the building recently vacated by the Chambers Auto Co.

Sam E. Killen, Dalhart, Tex., has bought the Dalhart Motor Sales Co. from M. A. Kelly.

The Ames-Ton Motor Sales Co., St. Louis, has located at 1211-17 Chestnut St.

W. P. McCarty, Haskell, Tex., will erect a \$12,000 garage.

M. Rich, Houston, Tex., will erect a \$14,000 garage.

M. O. Lyles, Haskell, Tex., has purchased the Marvin Garage.

Gib Jackson & W. R. Smith, Kaufman, Tex., have bought the garage of E. S. and Houston LaRoe.

The North End Garage, McKinney, Tex., is open for business. McCluskey Bros. & Milligan are proprietors.

A. Budworth, Pierce City, Mo., has succeeded W. N. Thielen in his garage business.

E. J. Keisling & Ben Bolton, Richmond, Mo., garage owners, have dissolved partnership, E. J. Keisling retaining the business.

Dick Houston, St. Joseph, has bought the Local Garage.

The Parish Motor Co., Sikeston, Mo., is building a brick addition.

Guy Calhoun, Sweet Springs, Mo., has rented the garage of John Eckhoff.

Fred T. & Carl K. Mizell, Marshall, Mo., have opened an automobile repairshop and garage.

J. M. Dieh, Newburg, Mo., will build a garage which will be in charge of E. Dillon, who recently purchased the Newburg Garage from A. Ellsworth.

Poland & Hawkins, Nevada, Mo., have opened a garage.

Houck Bros., Mountain View, Mo., recently purchased the City Garage and the Maxwell Garage from Will McBride.

John Moore & Son, St. Charles, Mo., will open a garage.

The Auto Parts Co., St. Louis, will open a branch at 2206 Locust St.

The Jackels & Campbell Co., Kansas City, "Truckmobile" dealer, has leased part of the first floor of the Hiatt-Bulck Building.

J. W. Goodrum, Seguin, Tex., is building a 53 x 80-ft. garage with showroom, repair-shop, office and service station.

The City Tire Shop, Snyder, Tex., is open for business. J. Henry Johnson is manager.

Walter G. Lacy, Waco, Tex., is erecting a brick building to be occupied with the Willard Storage Battery Co.

The Douglass Auto Supply Co., Waxahatchie, Tex., is ready for business.

Jones & Norrell, Weatherford, Tex., have purchased the Weatherford Garage from Jim Edwards.

Fritz Herman, Sabetha, Kan., has remodeled his garage.

William Raemer & Fred W. Raemer, Topeka, Kan., Stephens dealers, have taken quarters at 115 East Seventh St.

S. H. Early, Valley Falls, Kan., has bought the garage of Carl W. Keen.

Claud Coggins, Wamego, Kan., Overland dealer, is erecting a salesroom.

The B. F. Goodrich Rubber Co., Wichita, Kan., is building an addition to its building.

D. W. Biddinger, Wamego, Kan., is erecting a garage.

The Guyer Ford Service Station, Wilmore, Kan., is building an addition.

Clarence Weese, Fellsburg, Kan., is erecting a garage.

Miller & Warden, Garden City, Kan., are building a 50-ft. addition to their garage.

Horton & Roper, Geneseo, Kan., will occupy the garage being erected there.

Henry Drake, Hazelton, Kan., bought the McLain Garage.

The Puritan Oil Co., Hutchinson, Kan., has opened a new service station.

Roberts' Garage, Howard, Kan., has been opened.

The Carsten-Williams Co., Kansas City, have opened a branch at 1707 Grand Avenue in charge of F. W. Cornell and A. O. Johnson.

George Dodson, Wlathatha, Kan., is remodeling his garage and expects to take over the business of S. F. Myers.

The Watson Motor Co., Hutchinson, Kan., will enlarge its garage.

Forney's New Garage, La Crosse, Kan., has been opened.

Fred Neaderhiser, Manchester, Kan., has bought the City Garage.

Richard Rosenfeld, Marion, Kan., has purchased the interest of O. F. Oyer in the Marion Tire Shop and the firm will in future be known as Rosenfeld & Zenan.

S. A. Hindman, Ruch Center, Kan., will erect a rock garage.

C. M. & J. R. Jennings, Salina, Kan., are opening a repairshop.

The Hudson-Phillips Co., St. Louis, has been appointed Harroun dealer.

The Reconstructed Tire Co., St. Louis, has again opened for business at 3444 Lindell Boulevard.

D. T. Coolen, Bonner Springs, Kan., has bought the Golden Belt Garage.

George Sissell, Belleville, Kan., will build a vulcanizing shop.

Frank A. St. Cyr, St. Louis, manager of the Continental Co., has taken on the Hamilton Garage.

C. O. Richardson, Slater, Mo., has purchased the Rock Barn Garage from Montgomery Bros.

Springfield Storage Battery Co., Springfield, Mo., has opened at 317 Jefferson Street. J. W. Schmid is manager.

Wallie Jacks, St. Joseph, will erect a brick garage.

J. T. Wrinkle & F. C. Thompson, St. Joseph, are building a brick garage.

John Young, Sikeston, Mo., will build the Parish Motor Co. brick garage.

Rufus Luna, Willow Springs, Mo., has purchased the Horton Garage.

Mr. Johnson, Belleville, Kan., is erecting the Lewis Garage.

A. Karrer, Albany, Mo., has leased the Chenoweth barn, which he will convert into a garage.

Hill & King, Bolton, Mo., have bought the garage of Benjamin Hill.

Charles Hacker, Bethany, Mo., Ford and Buick dealer, has moved into the Esson Garage.

L. W. Beamon, O. R. Speechley and Will Smith, Chilhowee, Mo., are erecting a 50 x 70-ft. metal garage.

The St. Francis Motor Co., Desloge, Mo., will erect a \$4,500 garage.

Elce Belshe, Eldon, Mo., is erecting a garage.

The Joplin Olds Motor Sales Co., Joplin, is now located at 313-15 Virginia Street. C. C. Thorp of Webb City is president; C. E. Pickens is manager.

Howard & Murphy Motor Co., 1814-16 Oak Street, Kansas City, will open a Hupmobile service station.

Dyatt Bros., Kansas City, Drummond dealers, have opened the Dyatt Bros. Motor Sales Co. on the sixth floor of the Firestone Building.

Les Keith, Emporia, Kan., has opened a vulcanizing shop.

Carl Fish, Frontenac, Kan., is erecting a garage.

W. Parsons, Fredonia, Kan., is erecting a garage, 50 x 80 ft.

The Denmo-Kansas Co., Kansas City, Mo., has moved into larger quarters at 1506-8-10 McGee Street.

The Huested Auto Supply Co., Wellington, Kan., will open business soon in its new quarters on East Lincoln Street.

The Wilmore Garage & Mch. Wks., Wilmore, Kan., has sold its business to the Guyer Ford Service Station.

Frank Sutton, Hutchinson, Kan., Cole dealer, is erecting a new salesroom.

Fred Neaderhiser, Manchester, Kan., has bought the City Garage.

The Blue Valley Garage, Manhattan, Kan., has reopened under new management and is equipped to do all kinds of repairing.

The C. & A. Co., Pittsburg, Kan., is erecting a \$20,000 garage, 100 x 170 ft.

F. E. Shackelford, Pratt, Kan., is putting in a new battery service station at his garage.

The Arnold Co., Salina, Kan., is remodeling its garage.

William Raemer & Son Motor Co., Topeka, Kan., has opened a garage.

Robison Bros., Walnut, Kan., are erecting a display room, 25 x 115 ft.

A. Pilkington, Burrton, Kan., has bought the Clem Beckham Garage.

Lewis Kasi, Belleville, Kan., has leased the Meridian Garage from O. S. Willets.

L. R. Brooks, Blue Rapids, Kan., and W. L. Kelley, formerly of Marysville, have opened a vulcanizing department at Rodkey's Garage.

Dan Osborn, Cherryvale, Kan., will open a garage.

Leonard Goodall & Dave Hurtig, Delphos, Kan., have opened a repairshop.

E. Radcliff, Dexter, Kan., Chevrolet dealer, is erecting a stone garage, 50 x 100 ft.

I. H. Pilcher, Hartford, Kan., has purchased the Hartford Garage from Gilkey & Sloyer.

The Ames Ton Motor Sales Co., St. Louis, Mo., will open a fireproof building for sales and service.

Grubb Bros., Great Bend, Kan., are opening an automobile shop.

Sanford & Hodge, Winfield, Kan., have opened a vulcanizing shop.

The O. J. Watson Motor Co., Hutchinson, Kan., may enlarge to a big extent.

Clyde Hooper, Hutchinson, Kan., has resigned from the Hockaday Auto Co., and is now manager at a branch of Moore Bros.

B. T. Barber, Iola, Kan., is erecting a \$12,000 garage.

Marr Auto Supply Co., Iola, Kan., will erect a garage.

Delaney Bros. & Swartz, Knox City, Mo., will open a garage.

NORTHWEST

The Horst & Strleter Co., Davenport, Iowa, Ford dealer, will build a new garage at 416-418 West Third Street to cost \$25,000.

J. H. Lane, Woodland, Iowa, opened a new garage April 1.

R. W. Brouhard, Colo, Iowa, is building a garage.

O. E. Keyser, Randolph, Iowa, is building a Ford service station.

Albert Gaines, Primghar, Iowa, has bought an interest in the Hastings Garage and will be known as the Hastings-Gaines Auto Co. A new garage is being erected.

A. M. Babb, Osceola, Iowa, is building a new Ford sales and service station on South Main Street.

James Chapman & Son, Terril, Iowa, are building a new block for their garage business.

F. L. Bunton, West Union, Iowa, is building a garage and machine shop.

Dug Sullivan, Mount Ayr, Iowa, Ford dealer, is building a garage.

J. Fairbanks, Clarion, Iowa, soon will move into a new \$10,000 garage.

John Vogt, Waverly, Iowa, has sold his garage to W. W. Clark.

Odett & Woods, Union, Iowa, have sold their garage to Ray Reece.

Len Visser, Russey, Iowa, has sold his half interest in the Visser & Hill Garage to Grant Maddy of Tracy.

R. S. Fuller, Larchwood, Iowa, is building a new home for the O. K. Garage.

Rex Finney, Batavia, Iowa, has bought out the interest of his partner, M. T. Bevans, in the Batavia Motor Company.

C. O. Fish, Gaza, Iowa, has sold his garage interests to Salisbury Brothers.

F. A. Peters, Matlock, Iowa, has sold his garage and automobile business to D. J. King and L. E. Casjens.

Sherod Brothers, Keosauqua, Iowa, have opened a garage.

John Peterson, Durant, Iowa, is building a garage on the River-to-River Road.

Merle Hood, Batavia, Iowa, Ford dealer, is building a garage.

Byron Carr, Emerson, Iowa, is building a garage.

P. Van Zante, Pella, Iowa, will enter the automobile and garage business.

The Pella Motor Co., Pella, Iowa, soon will open to handle Overlands, Cadillacs and Appersons.

The Jenkins Auto Co., Lost Nation, Iowa, will open a new garage.

Fred L. Buch, Clarinda, Iowa, has bought the Waubonsie Garage.

Richard Spurl, Maquoketa, Iowa, is building a garage on Main St.

Jack McAteer, Brooklyn, Iowa, has opened a new garage.

Earl & Delbert Dunton, Brooklyn, Iowa, have bought the Brooklyn Auto Garage from Lown Brothers.

L. G. Rosauer, New Hampton, Iowa, is successor to the Wentz & Rosauer Auto Garage Co.

C. I. Mapsmith, Burt, Iowa, has opened a new repairshop.

The Walters Auto Co., Casey, Iowa, has opened for business in the Duncan Building.

C. J. Pell, Hubbard, Iowa, has bought the interest of his partner, A. P. Brocker, in the Pell & Brocker Garage.

The Abel Garage, Indianola, Iowa, has been bought by Frank and Will McCaughn and Ray Brock.

Thayer Vincent, Onawa, Iowa, has sold the Main Garage to John Jenkins of Rosalie, Neb.

The Rockwell City Auto Co., Rockwell City, Iowa, has bought the Davis Motor Co.

The Witte Brothers Garage, Wheatland, Iowa, has been bought by Henry C. Ficke and Henry J. Schneider.

F. M. Martin, Jefferson, Iowa, will move his garage and Hupmobile agency to a new building on Chestnut Street.

H. S. Griffith, Yorktown, Iowa, is doubling the capacity of his garage.

The H. Schultz Auto Co., Fairfield, Iowa, is building a new home for its business. The new location is on North Main Street.

Axel Rudd, Mason City, Iowa, is building a new garage at Second Street, S. W., and Delaware Avenue.

Everett & Baker, Colfax, Iowa, is putting up a new building for its automobile business.

The Hughes & Irons Motor Co., Council Bluffs, Iowa, Ford dealer, will have a new home, to cost \$25,000, on West Broadway.

Schermerhorn & Lovrien, Charles City, Iowa, opened a new garage April 1.

The Morgan Auto Co., Toledo, Iowa, will open a garage and Ford service station at Gladbrook, Iowa.

The Bybee Auto Co., Knoxville, Iowa, has been bought by F. C. and H. L. Macy of Adel and is now known as the Macy Auto Co.

Bert I. Porter, Atlantic, Iowa, has bought an interest in the Cushing Mch. & Auto Co., which has just secured the agency for Dodges.

Carl Hollingsworth, Toledo, Iowa, has bought the interests of his partners in the Toledo Auto Co. and is now sole owner.

O. C. Shum, Sharpsburg, Iowa, has sold the Saints Garage to R. K. Phillips of Conway.

The Repass Automobile Co., Waterloo, Iowa, will award a contract for the building of a new garage on Oak Avenue West, near Cedar Street, to cost \$100,000, and erected according to Ford factory specifications.

L. M. Allen, passenger traffic manager of the Rock Island Line of Chicago, and Charles Keeler of Davenport will build a garage at Davenport, Iowa, to cost \$20,000.

Charles E. Headly, Cherokee, Iowa, has bought the Lauer & Rogers Auto Co.

H. A. Farnsworth, Woodbine, Iowa, has sold the repair department of his garage and automobile business to J. B. Lassburner & Son.

W. A. Curtis, Cambridge, Iowa, has sold his garage to W. E. Bell and P. R. Alders of Maxwell, Iowa.

John A. Weber, Stacyville, Iowa, will improve his garage.

F. J. Mann, Emmetsburg, Iowa, will open a new garage and handle Fords for that territory.

The Olmstead & Grosscup Auto Co., Valley Junction, Iowa, has opened a garage.

E. J. Murren, New Market, Iowa, has arranged for the construction of an addition to his garage building.

The Robinson Auto Co., Tyndall, S. D., is converting a livery barn into a garage and showroom. Fred M. Robinson is manager.

H. B. Knudsen Automobile Co., Duluth, Maxwell, Paige and Republic truck dealer, has moved into new quarters at 202 East Superior Street.

Loranger & Gray, Havre, Mont., will build a garage, 40 x 140, at First Street and Fifth Avenue.

Lane Amusement Co., Duluth, has opened an automobile laundry in basement of the Lane Amusement Co. auditorium. There also will be storage for 100 cars.

The Jordan Automobile Co., 156-160 North Dale Street, St. Paul, has been formed to handle the Jordan. Harry Kemp, many years in the automobile business, is manager.

A. W. Wilson, Hastings, Minn., will erect a brick garage.

Gruhe & Delzer, Arlington, Minn., will erect a garage of cement blocks, 48 x 140.

Minot Motor Sales Co., Minot, N. D., will enlarge garage to two stories, 50 x 140.

Fred Voelisch, Hartford, S. D., has let contract for garage, 44 x 100.

L. N. Lewison and P. S. Champlin, Elk Point, S. D., will build a garage.

MOUNTAIN

The Mollman-Mulconner Motor Co., Denver, Apperson distributor for Colorado, New Mexico, Wyoming and Nebraska, has moved from 1313 Broadway to larger quarters in a new building at 1661 Broadway.

The Central Garage, Denver, is now managed by Harry George Jones. It was recently remodeled to increase its storage capacity.

The Felkner Auto & Repair Co., Sterling, Colo., Oldsmobile dealer for Logan county has just completed an \$11,000 fireproof garage, 50 x 125 ft., one-story, at 322 Poplar Street.

The National Rubber Supply Co., Denver, Miller tire distributor for Colorado, New Mexico, Utah, Wyoming and Black Hills section of South Dakota, has added Nebraska and Iowa west of Des Moines, and will supply the new territory from a branch opened in Omaha under the name of the Miller Rubber Co. of Nebraska.

The R. L. Evans Tire Co., Denver, has opened headquarters at 1622 Court Place to distribute Lancaster tires and Tolliver tubes for Colorado.

The Rocky Mountain Motor Co., Denver, Moon and Little Giant truck distributor for Colorado, Wyoming and New Mexico, has taken the Locomobile distribution for the same territory and moved from 439 Broadway to larger quarters at 1673 Broadway.

The J. P. Dunn Tire Co., Denver, a new firm at 1751 Lawrence Street, has secured the Hood tire distribution for Colorado, Wyoming and New Mexico.

The Rittmayer Garage, Denver, is a new concern in the \$4000 fireproof brick building, 50 x 125 ft., at 2012 Lawrence Street.

The Auto Electric Appliance, Denver, is a new accessory and repair concern at 846 Broadway. J. A. Nelson is manager.

COAST

Prough Bros., Visalia, Cal., Chevrolet dealers, have opened a new garage in Bakersfield, Cal., at Twenty-fourth Avenue and Chester Street. They will operate a service department in connection with their garage.

G. A. Gosalin, Bakersfield, Cal., is erecting a new garage at Twentieth and K Streets.

R. R. Carter, Maricopa, Cal., has sold the Maricopa Garage to H. F. Boofinger and W. H. Wathen.

Roy Corbett & Glenn Walker, Seattle, Wash., have secured the agency for the Miller carburetor.

W. T. Reid, San Luis Obispo, Cal., is enlarging the Ford Garage.

C. P. Nieman, Pasadena, Cal., has purchased the business of the Hansen Auto & Machine Works, 540 South Lake Avenue and will conduct a garage and service station.

The Guarantee Auto Electric Works, Pasadena, Cal., has moved from 63 West Union Street to 97-103 West Colorado St.

Herb. E. Adams, Long Beach, Cal., Kelly-Springfield, Lee and Savage tire dealer at 129 Locust Avenue, has moved to the corner of Ocean and Locust Streets.

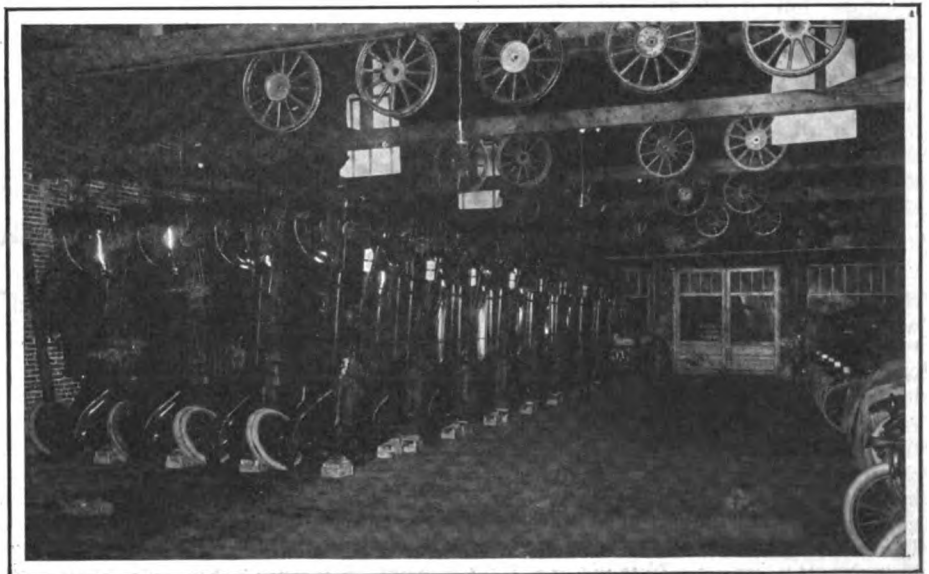
The Long Beach Auto Co., Long Beach, Cal., located at 134 Pacific Street, is remodeling its building.

The Nelson Motor Car Co., Spokane, located at 1517 Sprague Avenue, has taken over the garage building now being erected at Riverside and Sprague Avenues.

Woods & Hayden, Visalia, Cal., have moved into a building on East Main St.

Patterson C. Wright Motor Co., Visalia, Cal., is remodeling the building formerly occupied by Uhl & King and will open a garage.

Saving Space in Storing Fords



THE De Long Motor Co., Fithian, Ill., stands Fords on their ends to economize space. This picture shows 36 cars on a floorspace of 55 x 15 feet. Twelve assembled cars would take up this much space.

Why Some Men Win Out— Initiative

By Ray W. Sherman

"TOMMY," began Reilly, as he sat on the corner of Tommy's desk and pushed the young man's prospect file to one side, "I've got to switch things around a bit. This is going to be a big season, I believe, and I don't feel quite satisfied with the way we're lined up."

"No?" Tommy put out a feeler.

"You see, I've been depending on Charley McGrain, who has been with me a long time, to take the lead in the sales work, under my direction, but he doesn't seem to get things across. He throws too much on me—and I can't carry it all. And if I don't keep my finger in the works every minute things don't get done."

"I have framed up lots of plans—and you have suggested many of them yourself—but unless I keep right after them they don't mature. Charley lacks something that he ought to have. He started in well when he came with me some seven years ago, but for the last three or four years he hasn't progressed a bit. He went along all right for a while, but when it came to climbing up where I wanted him he didn't come through."

Reilly Makes a Switch

"And so," continued Reilly, "much as I dislike doing it, I feel that I've got to switch you and Charley around. Maybe I can add some used car work or something to his duties so he won't feel it so badly, but from now on you're sales manager in this office. I'm manager, but you've got to do most of the work. You've got to sell the cars. And, of course, you get more money."

"I sure appreciate it," said Tommy. "I'll try hard to make good."

"I'm sure you will," the dealer continued, "or I wouldn't have done this. I want to tell you, Tommy," Reilly added, "I have studied men for years. I have watched them climb to the top of the ladder, and I have seen them never get further than the first rung. It has interested me, this study of people, and one of the most interesting phases of it has been this study of salesmen and other young fellows in this motor car business. It even applies to dealers, to heads of agencies, to all of us. There is one thing that gets us across, and if we haven't got it we don't arrive."

TOMMY TRUMBULL, who has been known to readers of the Reilly stories for several years, has been promoted, and in this story Reilly, his employer, tells him why. The world is full of Tommy Turnbells and promotions—even great wealth and world fame—await them all—when they go after it.

"That one thing, Tommy, is initiative. It's what makes a go-getter out of an ordinary man. It's what lets one man spin through to the top like a house afire while another man, his equal in every way, stands still."

"If a lot of these men could once get the idea of what initiative is and what it means to them it would revolutionize this industry. It would revolutionize the world of business. It would add thousands of dollars to payrolls and millions of dollars to order books."

What is Initiative?

"And it's hard to tell a man what initiative is. It's still harder to show him how to develop and apply it. As nearly as I can express it, Tommy, it's just doing things NOW. It's action instead of inaction; it's using your head instead of letting your life be guided by the sides of a rut."

"This do-it-now seems to describe initiative in part, but the do-it-now has to be coupled THINK. The man who thinks and then acts has come very near to acquiring initiative."

"It's easy for a man to come to the office in the morning with his shoes looking just a trifle rusty, all of which isn't good business. Now here is an illustration of initiative. The man may operate in this manner: First—He scrutinizes himself and sees that he needs a shine. Second—He decides that he ought to have a shine. Third—He makes it a point to get that shine, even if he has to leave the house fifteen minutes earlier in the morning or be fifteen minutes later getting home at night."

"Now—If the man has initiative he takes the third step—he GETS the shine. If he is lacking in initiative he lets it slide—unless it is deucedly convenient—and goes without the shine. He resolves each day to 'do it to-morrow.'"

"Or, the man reads in a book, or a magazine, or a trade paper that he should plan his work and take up one task after another, so that he will get the greatest

number of things done in the least time. Now, if he has initiative he at once puts that plan into effect. If he lacks initiative he admits to himself that the plan is good and decides that he will do it 'to-morrow.'

He becomes a to-morrow man.

"Perhaps a dealer learns from a trade paper or the factory sales manager that it is a paying investment to have a courteous youth to meet customers at the door and make this first point of contact pleasant and easy. Most dealers will admit that this is a good plan. Those who have a business large enough to afford this extra man may at once engage him and set him at work. Other dealers may let the idea slip through their minds WITHOUT ACTING."

"Every customer should be greeted by some one before he gets far inside the door. All dealers should know that by this time, and those with real initiative have ACTED on the idea. Those without initiative have admitted the goodness of the plan but have postponed action."

"Some of the initiative you have developed may have been unknown to yourself, but you must realize that you have it. Take the case of our winter campaign on enclosed cars. You remember how you and I and Charley McGrain and the two new salesmen talked the whole thing over and laid out the plan. And then, you may or may not remember, the thing lagged at the start."

It Lagged at the Start

"I wanted Charley to get up the letters, fix the special prospect list and take care of all that work so we could slam through the winter and make some money. But I had to keep after him every minute. He needn't have worked his head off at the details of it. Nellie could have done most of the work if he had only given her a start, but he simply didn't get started. He was glued to his chair. He was in a rut. He thought he was busy—and he was busy—but the things he did were not the important things that I wanted done."

"Finally I took charge of the job myself and pushed it through. With direct supervision he did fairly well, but I had to stand back of him every minute and



He walks in the rut of habit. The better things of life are beyond his view. But initiative would get him out.

Read the story on
the opposite page

push him along. If I've got to do this personal supervising I certainly can't be paying Charley for handling the work. My supervising him is costing him money.

"When we finally got the campaign started you almost handled it yourself. You took hold and carried most of it along without waiting to be told. We pulled through with a fair winter's business.

"One morning, when you were new at this business you came in with dirty cuffs, evidently trying to see if the old shirt wouldn't go another day. I spoke to you about it and you never have done that since. I know because I've watched you. Not only that, but you have improved your personal appearance wonderfully. That one suggestion evidently opened up for you a whole train of thought and ACTION and you profited by it. Charley, however, has done that thing and worse, even though I have spoken to him many times. He doesn't scrutinize himself and see what are steps to progress. He just drifts."

Tommy looked out the window and Reilly made as though to go back to his desk. Then he began speaking again:

"You've heard of Barrows, general manager, vice-president and a stockholder in the Emen Gear Company. I've known him since we were kids together. There were several of us who palled together. The other day I was checking them up. Barrows is making money, I'm not exactly a pauper myself and the rest of the gang is holding down jobs. Two of them are clerking in the Emen offices.

Made Waste Time Count

"Barrows has wonderful initiative. After he left school he got a job as salesman in the Sennett salesroom in Cleveland. It was all new to him and he hardly knew how to start. They gave him a desk and a few prospects and told him to go to it. He soon discovered that many of the salesmen wasted hours a day doing unprofitable work, standing around the salesroom, going all the way across town to see widely separated prospects, and, when there were no calls to be made, simply waiting for prospects to turn up.

"This didn't appeal to him as the way to a successful future, so he asked the sales manager for permission to dig up a few prospects of his own. The permission was gladly given, whereupon Barrows went downtown where business men's cars were parked along the curb and got the names and addresses of six or seven lawyers whose cars looked old. Barrows went to work on these men and inside of six weeks sold cars to three of them.

"Then he looked up a grocery jobber who had a half dozen men traveling the

city and county and before he got through sold the jobber six runabouts. About this time the other salesmen began to say things about this young up-start who had just come from school and didn't know any better than to work his head off trying to make a hit with the boss.

"Barrows soon was making more money than any of the rest of the salesmen, and before long he was made assistant sales manager. Then the Congress distributor in Chicago hired him to handle the wholesale and Barrows filled the Middle West so full of Sennetts it couldn't breathe.

"No one had ever heard of teaching

used to think up sales ideas and pass them on to the manager in a diplomatic sort of way until he got to producing so many and such good ones that they almost had to make him some kind of manager so he could help carry out the things he thought of.

"He always studied himself, too. He was always neat and businesslike in his dress. He used to walk in front of a mirror once in a while to see how he looked. He used to study the clothes men wore and watch for the most suitable outfits. He was always shaved, shined and pressed and looking like prosperity instead of last year's outfit.

"Every now and then he would check up on himself to see how he had been progressing in his work. If he found himself slipping into a rut he yanked himself out, beat himself up and made all sorts of threats against himself. If he found himself doing to-day the same old things he had been doing a month ago and in the same old way he considered it the subject for a thorough investigation.

"He used to keep an idea book. In it he set down the workable ideas he evolved. Every so often he would go through this book and scrutinize it. If he found himself slacking up he overhauled himself again.

"Whenever the boss made a suggestion or issued an order Barrows set that down in a little book, and every so often he would go through this and see whether he was keeping up to the boss's schedule. Barrows figured that he was taking the boss's money for doing the things the boss wanted done and that the nearer he could come to doing all the things the boss wanted done the nearer he came to being in line for a better job.

Went Ahead In Planning

"He used to take the boss's ideas as an indication of the line of things the boss wanted done and from that he would work out a whole line of things the boss never had thought of but which were exactly the things he wanted done. Barrows got so he was about four jumps ahead of the boss's own thinking machine.

"Some of the fellows used to sneer among themselves because Barrows tried to please. They never looked upon it as the Science of Fitting In. They couldn't see it as anything except 'working his head off.' It never occurred to them that a man might advance himself by doing things without waiting to be told. Their idea of a good man was one who did everything he was told to do—and that's about all.

"And that, Tommy, is the limit of so many fellows. They do all they're told to do but they don't do anything without a positive order. They don't realize that hands and average brains are cheap

(Continued on page 44.)

Keeping up with the Prospect

YOU have kept up with the development of the car, but have you kept up with the development of the buyer? Perhaps the thought in next week's Reilly story will interest you. Watch for it.

dealers to sell cars until Barrows opened a school of salesmanship and began bringing the dealers in to study how to sell the Congress. He also had the dealers send in their salesmen. He sewed up the whole territory into one big, closely knit organization and it just sold cars, cars, cars! The dealers whooped it up for him because they made more money than they had ever made before in their lives.

"You see, he did things without waiting to be told. He always brought back more than he was sent out after. He always earned more than they paid him so they would feel justified in paying him more.

"And finally the Emen Gear people got him and he has climbed along until now he's independent for life, even if he should quit work this minute and never work again.

While They Wished He Did It

"He was one of those fellows who seemed always to be doing the thing somebody wanted done. *While they were wishing about it Barrows did it.* All that was necessary for him was a suggestion; he didn't have to be driven. He was always looking for things to do that would count. He didn't let himself be buried by a lot of details. He cleaned the details up and then began looking for bigger things to do. He was always thinking, planning, scheming how things might be better done.

"In the Sennett place in Cleveland he

The thirty-second in a series showing

Dealers Who Have Made Good



E. J. Johnson

Denter

IT just happened that E. J. Johnson left the East a few years ago to locate in Colorado. But it didn't just happen that he went into the motor car business in Denver 6 years ago, nor did it just happen that he pushed his Chalmers sales for 1916 to \$6,000 beyond the million mark. He is recognized as one of the most successful car dealers in the Rocky Mountain territory.

Johnson was born 47 years ago at Bloomington, Ill., and made an early business start in Rhode Island, where he spent several years as a manufacturer of rubber-covered wire and cables. He went to Colorado to look after some large real estate holdings he had acquired, and now has a 1000-acre ranch, under irrigation and well stocked with cattle, in the San Luis Valley, in the southern part of the State.

His first experience in the motor car business was distributing the Maxwell and Lozier, and the last 3 years he has handled the Chalmers exclusively for Colorado, Wyoming, New Mexico and part of Nebraska. He added the Premier agency for the same territory in February of this year.

Johnson is building his business upon four main foundation principles: (1) Modern, practical efficiency in system of administration; (2) service that makes friends of customers; (3) special provision to handle used cars; (4) financial resources to permit time-payment sales.

In appointing dealers out in his territory, he seeks men able to conduct business as fully as possible according to the rules he has laid down for himself, and thus constantly increases the resourcefulness of the dealer division of his organization.

He makes business students of his salesmen by requiring careful reports of why and how sales are made or not made; follows up repairs and adjustments to see whether customers are satisfied; sends a service man to a customer's home when some trouble is reported for emergency attention and can likely be taken care of outside the shop; sends customers special instructions and suggestions for winter care and use of cars, and otherwise helps them to enjoy their machines to the full; impresses upon his employees and his dealers that the customer must always be kept sight of and tactfully helped to get the most possible benefit from his purchase.

Some of Johnson's friends declare that personal magnetism and wonderful "closing" ability make "E. J." a salesman of rare success personally—one of these fellows that can sell you anything when they try, if you have the faintest idea of wanting it and can pay for it.

They say also that he is the type to make about \$50,000 a year selling some gigantic machinery on a gigantic scale, where one man would be expected to close only half a dozen contracts a year, but where each order would run into millions. But Johnson gives the credit to sound and systematic methods of reaching the customer and meeting all his motorist needs.

A Department of Better Mechanics

No. 18

Clutch Repairs and Adjustments On *The Saxon Six*

THIS clutch is of the dry plate type, Raybestos lined. It consists of 4 steel plates, with intermediate plates that are double-faced with Raybestos lining. With proper lubrication and occasional adjustment, this type of clutch is exceptionally satisfactory.

One of the worst things a driver can do is to ride the clutch pedal. This tends to keep the clutch yoke bearing in constant operation. Not only is the wear on the bearing increased, but the clutch may be partially disengaged, causing slip and wear.

Other owners habitually slip the clutch, instead of changing the gears, and this puts an unusual amount of wear on the clutch bearings and faces. At least after each 2000 miles, the clutch bearings should be cleaned, and repacked with grease. The clutch pedal and springs

should also be adjusted at this time.

The following are the evidences of needed attention:

1—SLIPPING CLUTCH.

See that the clutch is not held out by the pedal resting against the toe board. If so, take up the pedal by tightening the turnbuckle beneath the floor boards.

This adjustment usually is accompanied by tightening up on the three clutch springs. To do this, see *Clutch Adjustment*.

Slipping may also be caused by glazed or oily clutch surfaces. These may be cleaned by washing the clutch out with kerosene.

2—GRABBING CLUTCH.

Caused by too tight clutch springs. See *Clutch Adjustment*.

Grabbing may also be caused by a dirty clutch. Clean with kerosene.

3—SERIOUS DEFECTS.

Failure of the clutch to operate smoothly, or quietly, after the above adjustments, cleaning and lubrication have taken place. This latter condition necessitates removal of the clutch, for examination and repair.

TO REMOVE THE CLUTCH

No special tools are required for this work. A No. 25 S-wrench, and a spark plug socket wrench are all that are needed outside of the regular shop tools.

1—Remove the floor boards.

2—Remove the lower cross member on the frame. It is held by three bolts on each side, and two in the center.

3—Remove the clutch throwout yoke.

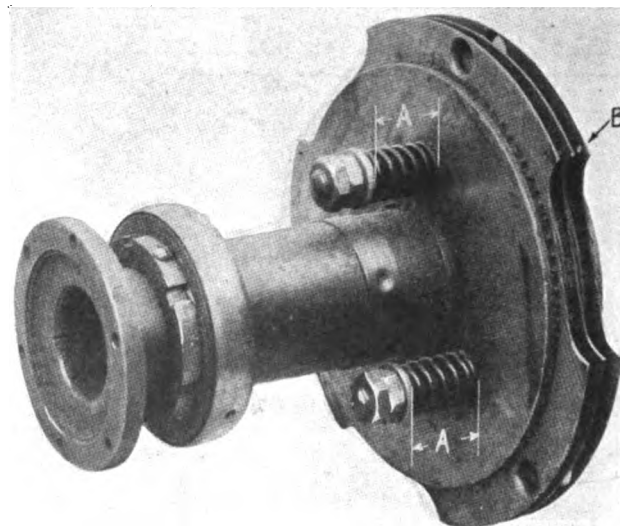
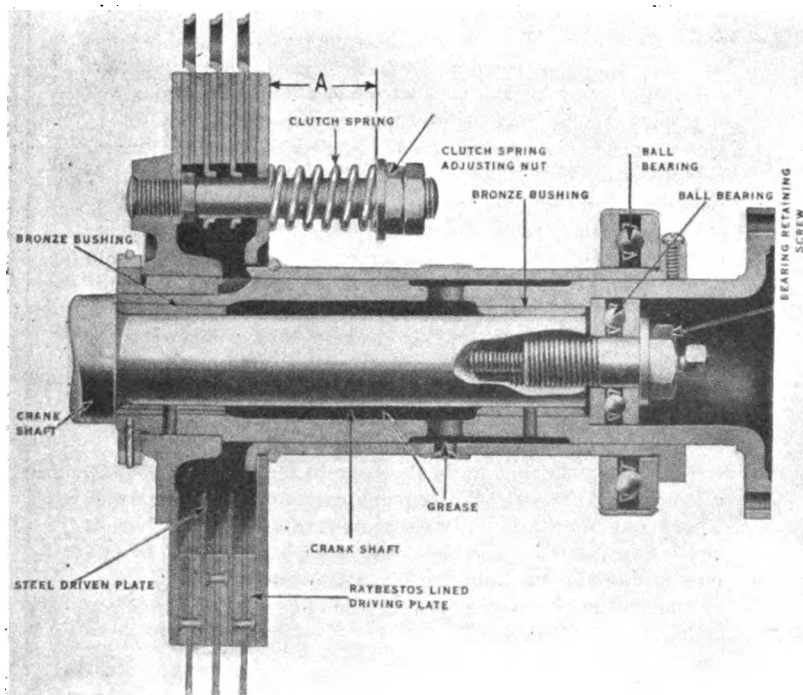


Fig. 1—Above—In tightening the clutch spring bolts the distance A in each case should be the same. The anti-rattle spring should be hooked onto the inside plate at the point B

Fig. 2—Left—Sectional view showing internal construction

This is held by three bolts, and one big pin on the right hand side.

4—Disconnect the universal joint, and remove it entirely.

5—Using the spark plug socket wrench, remove the bearing retaining screw.

6—Unsnap the three anti-rattle springs connecting the tips of the inner clutch plate with the fly wheel.

7—Pull clutch out, and place it on the bench.

TEARING DOWN THE CLUTCH

1—Remove the clutch spring adjusting nuts.

2—Remove the lock spring from the flywheel side of the clutch.

3—Unscrew the lock nut from the flywheel side of the clutch. This may be done by using a brass punch, and a hammer. A spanner wrench should be used, if available.

4—Drive out the inner sleeve. This may be done with block of wood and a hammer. Care must be taken not to upset the bushing, or the clutch cannot be again placed on the crankshaft end.

5—Remove the clutch plates, and examine for:

1—*Wear.* If the linings are worn, but worn evenly, it is only necessary to clean them with kerosene, and roughen them a little with a bastard file. If worn thin in places, it is necessary to reline the disks.

2—*Warped Disks.* These are caused by driving with the foot on the pedal, or by slipping clutch. The warp may be seen by holding the disk edgewise to the light, and sighting across it, toward the light. If warped, the steel part of the disks should be replaced, as the warping tends to prevent the clutch from releasing.

3—If necessary to reline the disks, use linings obtained from the factory. These are cut to shape, punched and countersunk, ready for attachment. Starting at one end of the strips, rivet them to the plate with 3/16 in. split copper rivets.

4—Clean both sets of ball bearings with clean gasoline, and examine for wear. Any indication of pitting or checking, either in the balls or in the races, necessitates replacement of both balls and races.

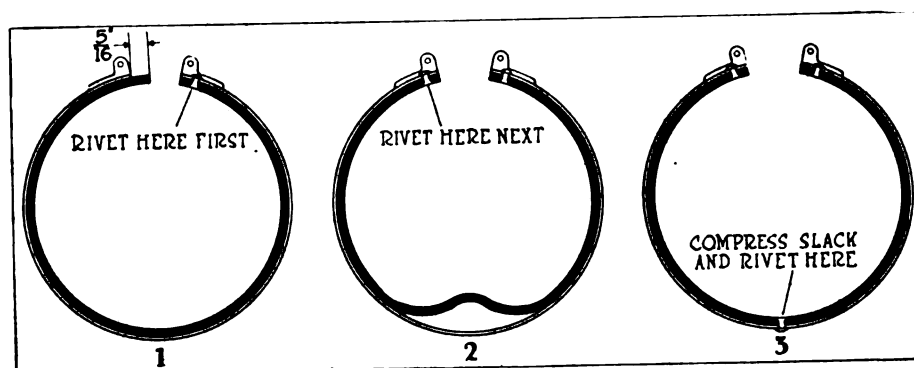
5—Examine the bronze bushings, on the interior of the clutch hub, for wear. This may be done by sliding the hub into place on the crankshaft end, and noting whether there is any side play. If such is the case, the bushing should be pressed out, and new bushings replaced. These bushings should be reamed to fit the crankshaft end, if a suitable reamer is at hand. Otherwise, it must be carefully scraped to a fit.

ASSEMBLING THE CLUTCH

1—Replace the clutch plates, making certain that the plates are in the position shown in the sectional view.

2—Replace the inner sleeve. Then tighten the large locknut on the flywheel

RELINING BRAKE BANDS



When relining brake bands the lining may be made to lie flat against the band by adopting the following method: Cut the lining about 5/16 in. longer than the band and rivet the ends flush with the band. Then force the lining tight against the band all the way around and rivet it in place.—J. C. Raymer, John Raymer & Co., Reardan, Wash.

Previous Articles

Subject	Date No. of Issue
Overland—Main and connecting rod bearings	1 Dec. 13
Cadillac—Cam and fan-shaft driving chains	2 Dec. 20
Maxwell—Rear axle repairs	3 Dec. 27
Chevrolet—Clutch repairs	4 Jan. 3
Borg & Beck—Clutch adjustments	5 Jan. 10
Hudson—Oil pump adjustments	6 Jan. 17
Reo—Clutch adjustment	7 Jan. 24
Bulck—Rear axle adjustment	8 Jan. 31
Chalmers—Valve and ignition timing	9 Feb. 7
Dodge—Brake adjustment—Push-rod care	10 Feb. 14
Studebaker—Torque arm repair—Push-rod care	11 Feb. 21
Cole—Adjustments of motor	12 Feb. 28
Paige—Oil level adjustments	13 Mar. 7
All Cars—Removing Compression Knock	14 Mar. 14
All Cars—Rebuilding the Storage Battery	15 Mar. 21
Cadillac—Rebuilding the Radiator	16 Mar. 28
Ford—Magnet Replacement on Magneto	17 Apr. 4

side of the clutch. This may be done with a piece of brass and a hammer. Replace the lock spring.

3—Replace the clutch spring adjusting nuts.

4—Pack the bearings and bushings with grease or non-fluid oil.

5—Place the clutch on the crankshaft end.

6—Using the spark plug socket wrench, tighten the central screw. This should remove all end play, yet should not be drawn tight enough to cause the clutch to bind. Tighten the central lock screw.

7—Hook the three anti-rattle springs to the tips of the inner lined clutch plate and to the flywheel. If these are hooked to either of the other plates the clutch will not release readily.

8—Replace the universal joint, after packing with grease.

9—Replace the clutch throwout yoke.

10—Replace the lower frame cross member.

CLUTCH ADJUSTMENT

1—Tighten the three clutch spring bolts, making the distance from the washers to the clutch face the same in each case.

2—Note whether the clutch pedal hangs on the toe board, when engaged. If so, tighten the turnbuckle, drawing the pedal from the toe board.

3—Start the engine and by test determine whether the clutch slips or drags. Slipping may be removed by tightening the three clutch spring nuts the same amount. Grabbing may be removed by loosening these nuts. Care must be taken to have each of these springs exert the same force on the clutch plates. Otherwise uneven wear will result.

4—If the linings on the clutch are new, it will be advisable to tighten the clutch springs slightly, after 100 or 200 miles, as the linings and plates will then have come to a practically permanent seat.

Note—The method of repair outlined above may be applied to the Saxon roadster. In this case, to remove the clutch it is necessary to remove the engine bolts and raise the engine about 4 in., so that the clutch will escape the pan on removal.

Motor World Used Car Price Record

Support Universal Military Service

A LOT of people haven't yet waked up to the fact that America is at war.

And they haven't realized yet that the intense struggle that has been going on for nearly three years in Europe is now a part of our lives. We are in it—and in it to a finish.

It's time to wake up.

Do you know that YOU are at war? You, yourself? Not somebody in New York or San Francisco or Panama or London, but YOU, YOU, in Minneapolis, New Orleans, Kansas City, St. Louis, Des Moines, Denver, Abilene, Devils Lake, Waukesha and all the other towns in the United States.

If the enemy were out in the street bombarding your place of business with grenades and shooting a few holes in your front you would sort of sit up and take notice, wouldn't you?

Even if they aren't YOU are at war just the same and should not sit back in lethargy and depend upon someone else to play YOUR part. You must play your own part.

We're ALL at war and we must ALL help, whether we are distributors, dealers, salesmen or washers and polishers.

One big need is the spreading of the Gospel of Americanism, being patriotic, spreading the spirit of patriotism. Wake the people up! Make them realize that they are Americans and that America is at war!

Hang out your flags! Put flags in your offices! Fasten a little flag on the front of your demonstrating car! Insert a patriotic line in your advertising! Get into the thick of the movement and boost it all you can!

Make people think! Wake them up!

That's the thing YOU can do all the time, no matter what your occupation. If the whole motor trade **ONCE GETS STARTED** it can do wonders for its country.

And then there is the matter of universal military training. Without some plan of this kind not much can be done. Haphazard war work will not bring the results that we must have if the war is to end in success instead of disaster.

If we had had universal military service long ago the situation of to-day would be minus many embarrassments. We would not be confronted with the problem of training men and making an army out of absolutely raw material. It would not be necessary to wake the people up.

Could a motor car dealer afford to wait for the demand before he trained his service men? No! One of the big stones in his foundation of success is that he has trained men ready for trouble.

America has waited until the trouble came and must now train the men. It is a momentous job.

There is in Congress Senate Bill No. 1695, called the Chamberlain Bill. It provides for the training of every able man for six months during his nineteenth year. It gives every citizen a knowledge of how to protect his country in his most efficient way, and because all America would be prepared it would be **SAFE**.

Not only would this militate **AGAINST** war, but it would leave a race of better men. It would put straight spines and erect shoulders where there now are thousands of ambitionless, drooping figures.

It would develop initiative where many now grovel in a rut.

It would foster true patriotism, love of country, virile manhood, clear thinking, better health and greater personal and national efficiency.

What would thousands of men not give for six months in the snap, dash and fresh air of a training camp? The Chamberlain bill would give it to young men at the turning point of life, when they are in the formative stage—and would pay their expenses.

Tell your senator and representatives in Congress that you favor universal training. Let the motor trade get back of this movement. Let's wake up and take our part in our country's business. It is **OUR** country and its business is **OUR** business. Let's look after it.

If you want further information about the Chamberlain Bill ask Motor World for it. But its essence is six months of training in the nineteenth year. The training is in special camps, not in the regular service.

It is time to act **NOW**.

To-morrow stuff will get no one anywhere.

There should be no such alternative as **NOT** favoring universal training. You can't serve God and Mammon! You can't be an American and an anti-American too! You can't be patriotic and oppose the things that are for your country's best interests.

Universal training will make America a bigger, better nation.

The lack of it—

Give thought to your country's welfare in her hour of need. Take a clearly defined stand as a real American. Support universal training.

Motor Trade Stirs with Activity as America Steps into War

Manufacturers Prepare to Furnish Cars and Trucks—Dealers Aid in Promoting Motor Reserves—Motor Clubs Actively Enlist in Work—Even Women Take a Hand

DETROIT, April 9—War and military preparations will not seriously affect the normal status of the motor car industry. This is the view held by the higher officials of the motor world. The smoke of early rumors and snap conjectures is clearing and the future, as based on the substantial knowledge of authoritative circles, seems to be less chaotic than first predictions conveyed.

It is pointed out that practically every munitions and other factory which had been engaged in operations for the Allies has completed its contracts and is now able to commence work for this government at full capacity. In fact, offers are now coming from Canadian plants who are no longer needed by the Allies, and who stand ready to make rifles and other military necessities for the United States. The greatest needs of the Allied Nations seem to be food and raw materials and these, of course, are not connected to an important extent with the motor car industry.

Factories to Continue

Consequently, it would seem that the majority of the automobile factories will be permitted to continue their normal business while a few, which have already been in communication with the government, will manufacture aeroplane motors and trucks. Reports have it that truck manufacture will be attended to by the large truck factories assisted to a certain extent by large motor car plants as will be designated by the United States.

The war rumors are thick here and it is not uncommon to hear about guards and cannons at practically every factory in the city but excepting flags and recruiting stations there are actually no visible signs of military activities.

It is also reported that several of the larger parts makers will devote a part of their factories to the manufacture of munitions and that in a few instances the plants are already engaged on a modest scale in this work. The plan seems to be to take a few of the employees at a time and instruct them in the work and then shift them to the regular employment while others learn the munitions routine. In this way but a few machines are used and the entire force becomes competent and available if future events demand it.

Minor activities continue. The Good-year Tire & Rubber Co., Akron, Ohio, has added military training to its educational classes and instruction is given by

EXECUTIVE OFFICES
UNITED PUBLISHERS CORPORATION
243 WEST THIRTY-NINTH STREET
NEW YORK

April 10, 1917.

Mr. Grosvenor B. Clarkson,
Secretary of The Council of National Defense,
Washington.

Dear Sir:

After consultation with our board of directors, the United Publishers Corp. has decided to offer to all departments of the United States Government the absolute co-operation of our industrial publications covering many leading industries of this country, both in the matter of editorial co-operation and the free use of advertising space, for the purpose of assisting the Government in the mobilization of our industries, publicity in methods of finance and the promotion of any project undertaken by the Government during the present condition of war.

We cover the iron, steel and machinery industries through the Iron Age and Hardware Age, New York.

The automobile and motor truck industry through the

Automobile.....New York
Motor Age.....Chicago
Commercial Vehicle.....New York
Motor World.....New York

The shoe industry through the
Boot & Shoe Recorder of Boston.

The building industry through the

American Architect.....New York
Building Age.....New York
Metal Worker.....New York

The dry goods field through the

Dry Goods Economist.....New York
Dry Goods Reporter.....Chicago
Drygoodsman.....St. Louis
Pacific Coast Merchant.....San Francisco

We shall seek to interest the active co-operation of these important business interests in their local centers, and shall hope to especially assist in placing the bond issue without expense to the Government.

In any of these matters your commands will receive our prompt and immediate attention.

Yours very truly,

H. M. SWETLAND,
President.

an ex-army officer. Workers receive 2 hours of drill each week.

Lieutenant J. L. Backus of the Thirty-first Michigan regiment is organizing an all-soldier-manned automobile truck train and is preparing to drill and train the men with trucks for actual service on short notice. The men will be enlisted as regular soldiers and serve as a part of the quartermasters corps. As many companies will be organized as possible and volunteers are sought. Each train will consist of 33 regular chauffeurs and 9 extra chauffeurs, 3 assistants, 1 chief mechanic and 3 assistant mechanics.

The Higrade Motors Co., Grand Rapids, Mich., is making a four-wheel drive heavy duty truck which will soon be tested by the government ordnance department. The truck is the invention of L. W. Coppock and if found successful by the government, the Higrade company will take it over with the patent rights and will manufacture for government purposes.

The Reo Motor Car Co. has formed the Reo Rifle Club, which in turn is organizing an infantry company for war purposes.

Chicago Takes a Census

CHICAGO, April 10—A complete census of the motor trucks suitable for army service and drivers capable of handling them is being made by the recently appointed mobilization committee of the Chicago Automobile Trade Association with a view of furnishing army headquarters with a list of trucks which owners will voluntarily offer for service and a list of drivers who voluntarily offer to enlist to drive.

The census is being drafted through the dealers; each dealer lists his truck purchasers and these purchasers are communicated with. If they express a willingness to relinquish their trucks for government service the complete specifications of the trucks as regards power, capacity, tire size, etc., is listed in the report which will be given to the army. Although the present census has to do with trucks only a survey of the passenger cars will be made if conditions seem to warrant it. L. Markle, Studebaker distributor, is chairman of the mobilization committee.

U. S. Truck People Parade

DETROIT, April 9—Headed by officials of the company and escorted by a body

of state militia, officially designated, more than 500 men and women employees of the United States Motor Truck Co., Cincinnati, held a patriotic parade in Covington, Ky., where the factory is located, on April 7, immediately after word was received that President Wilson had signed the Declaration of War.

Immediately upon the conclusion of the demonstration, R. C. Stewart, president of the company, wired President Wilson as follows:

"Our entire factory force, including all officials, every department, and young ladies in the offices at noon today, when receiving their salaries, were each presented with a silk flag and, headed by a detachment of state militia and old veteran rifle and drum corps, gave a patriotic parade as a testimonial of our love of our country and our support of you as our chief. More than 500 were in line and the parade extended over several city blocks. We are 100 per cent for America and its President."

One feature of the parade which caused great cheering was the announcement that F. B. Massey, transportation engineer of the company and formerly of the U. S. Navy, had been recalled. Lieutenant Massey reported to the Boston Navy Yard.

350 Racers Have Signed

NEW YORK, April 9—The list of racing drivers who have signed up for governmental work during the war has been increased to 350. These are about even in their selection of the two departments, the aviation and the armored car division.

Boston Automobile Dealer Corrals Germans

BOSTON, April 7—President George W. McNear, of the Massachusetts State A. A., and former president of the Bay State A. A., well known in the automobile trade in Boston as a builder of motor bodies, made the first capture of the war for the United States naval forces when he overhauled a yacht with men aboard starting out on what was believed to be a plot to cut the cables leading from here to Europe.

He is the owner of a fast power boat, the Lilly II, and he is enrolled in the Naval Reserve. To-day he was on duty in Boston harbor when he noticed the Sparrowhawk leaving the harbor. He went after it and overhauled it. Capt. McNear commanded the three men aboard to hold up, but they refused, so he swung his boat around and forced the Sparrowhawk to shift its course.

Federal men aboard the Lilly II leaped on the Sparrowhawk and handcuffed the three men. They found the boat equipped with a winch, long wire ropes and other tools that could be used in wire cutting, and the leader was a German who had been a sailor on one of the interned German ships. The men were arrested and turned over to the Federal authorities and now are held in \$5,000 bail.

It is believed they were going to Rockport, where the cable runs ashore in an unfrequented spot, and under cover of darkness fish it up and sever it. Capt. McNear has been on duty for more than a week, and this capture is hailed with joy by Federal authorities, as it shows how alert the civilians are in this important work.

Kansas Club in War Work

KANSAS CITY, April 7—The Kansas City Tractor Club, at its annual meeting, appointed a committee to confer with other organizations on securing a munitions and supply depot for Kansas City. G. H. Martin, who presented the subject, is bringing it before the motor car dealers also, and the Implement, Vehicle and Hardware Club will be asked to co-operate.

The Tractor Club appointed the following conference committee: W. E. Giberson, T. C. Grether and G. H. Martin. The club elected these officers—each being a re-election: President, E. J. Anderson; vice-president, J. P. Smith; secretary-treasurer, Guy Hall. Directors are: W. R. Ellis, J. A. Keating, Henry Lewis, E. Voorhees, Thomas Yount. The club decided definitely on a tractor show at Kansas City next year, to be known as the National Tractor Show.

Moon Hangs Out a Flag

ST. LOUIS, April 7—There was a flag raising at the plant of the Moon Motor Car Co. here when the word came from Washington that this country was going to war. Stewart McDonald, vice-president of the company, instructed Superintendent R. L. Cleveland, of the plant, to provide an American flag of the regulation size used for army posts. Then there was a gathering of all employees and a formal flag raising. McDonald, who served in the United States Navy during the Spanish-American war and was at Santiago, told the employees that any of them who belonged to the militia or who might enlist for the war, would find their jobs open on their return whether it was one month or five years.

Stutz Gives Six Ambulances

INDIANAPOLIS, April 7—The Stutz Motor Car Co. has given six ambulances with drivers to the National Guard of the State of Illinois.

Ohio Women Preparing

COLUMBUS, OHIO, April 10—In line with the preparation for war, which is now attracting the attention of the entire population, a dozen women of Columbus have started to learn the intricacies of the motor car and truck in order to be in a position to serve their country. The class for a while met at the Columbus Ford branch, but it is now being held at the service station of the Standard Motor Car Co., distributor of the Hudson. Instructions are given by J. B. Mott, service manager of

the company. Many women are enthusiastic over their new line of endeavor.

Hartford Dealers Propose Motor Corps

HARTFORD, CONN., April 9—From present indications Hartford will have a sizable motor corps to fall back upon in case of an emergency. Practically every dealer in town is anxious to do what he can to further the cause. The State is taking a census of cars, and when the reports are in within a week or two there will be definite knowledge of the strength of the motor corps.

Many of the dealers who have a hankering for the water prefer the submarine-chasing squadron, notably David B. Roberts, who is now completing a fast twenty-footer fitted with a six-cylinder Buick engine. Roberts was one of the very first to volunteer his services, and his cars go along with his boats in his offer to the government. When it comes down to road work, why no one knows the situation much better than the car dealers. They know all the trails, the main and the short cuts.

The home guard has been organized in various towns in the State and cars will be necessary for this branch. It is proposed to mount light rapid-fire guns of the Colt variety on motor cars.

As Connecticut is in the heart of the munitions belt, and Hartford is conspicuous in this regard, local dealers feel their cars are going to be needed. In his request for information the Governor has asked as to the willingness of owners to turn their cars over to the Government or State.

According to Earl M. Taber, wholesale manager of Russell P. Taber, Inc., Reo distributor, the war situation has boomed all trucks. "The truck business is good," said Mr. Taber. "We sold two 2-ton cars over the telephone yesterday. Trucks sell now absolutely without solicitation. We are going out to Lansing to get all the trucks we can and run them over the road." The Taber organization has sold two cars to the home guard. There has been an unusually sharp demand for Pierce-Arrow trucks in the past two weeks. Federals are much in demand.

Chattanooga Plans to Help

CHATTANOOGA, TENN., April 7—Garages and sales agencies in Chattanooga, together with private owners, could furnish enough experienced drivers for a motor transport unit for the army, according to a survey made by a committee of the Chattanooga Automobile Club.

The garages and dealers could furnish 55 men who could drive well enough to man a transport and make ordinary road repairs required in such work, it was ascertained. In addition, hauling companies and private service could provide 200 men for similar work. The committee found that there are 150 motor trucks in the county in private use. Sixty per cent of these are driven

by negroes. The largest number of any make was 30.

Capt. Oliver P. M. Hazzard, of Fort Oglethorpe, who was in charge of motor trucks in the border service, recently lectured to the club on this work, and much enthusiasm has been created. He described a truck company as consisting of 33 trucks, 30 being cargo cars, one tank car, one car for spare parts and one kitchen car.

Coast Wants Military Road

SEATTLE, April 9—To consider the wisdom of asking Congress to construct a military highway from British Columbia to Mexico along the Pacific Coast, the Pacific Highway Association of North America will meet here April 10. All American cities on the Coast have been invited to attend this meeting by Samuel Hill, president of the association.

The meeting has been called for the following purpose: First—To consider the wisdom of asking Congress to build a military highway along the Pacific Coast from British Columbia to Mexico, and if approved to ask Congress for immediate action in the matter.

Second—To appoint a committee to co-operate with the officers of the various States interested, looking to the completion of the hard surfacing of the present Pacific highway at the earliest possible date.

Third—To appoint a committee to co-operate with the proper officers of the national government in mapping and planning highways suitable for military purposes in the States of California, Oregon and Washington.

Reo Pays "Federalized" Employees

LANSING, April 3—The Reo Motor Car Co. gave 42 employees, who served with the Lansing battery on the Mexican border, more than one-half their salary for the 8 months the soldiers were absent, on their return to work Wednesday. Some of the men averaged more than \$400 in back pay.

Business Booms in Boston

BOSTON, April 9—Apparently the Boston motor car and truck dealers are not worried about the declaration of war. It was believed that the first indication would be felt by the Sunday papers in a falling off of automobile advertising. Instead there has been an increase.

The four Sunday papers yesterday carried more automobile advertising than they did for any Sunday issue outside of a show number. The proprietors were surprised to find that new records for that class of advertising had been made so soon after the declaration of war.

And the dealers are optimistic, too. They feel that they have nothing to fear from freight embargoes for they had planned already to beat it because

of the delays all winter. Also they figure out that people will want to get cars in order to do things more quickly than before. A few dealers got cancellations of orders, but as they were behind in deliveries they quickly turned the cancellations over to others who wanted cars. The truck dealers feel that they will have to hustle to fill orders instead of getting cancellations.

New England Motorists Hasten to Help

BOSTON, April 7—New England motorists have responded to the country's call for aid very well so far.

Some weeks ago Massachusetts organized a Safety First Committee, and Chester I. Campbell, secretary of the Boston Automobile Dealers' Association, was placed in charge of trucks and cars. He sent out a call for cars and got a lot of replies. Then the Bay State A. A. held its banquet and passed around slips asking for cars or truck from the members, and many volunteered. These were sent to the committee and turned over to Campbell. The Springfield A. C. did the same. Up to date about 2500 cars and trucks have been volunteered. These are being tabulated so that duplicates may be eliminated.

Down in Maine the Maine State A. A. began a campaign to list every motor vehicle in the State, and the result is that they have succeeded in getting a large number to volunteer for service. Connecticut has a full list, not only of its cars and trucks, but of men who can operate them and keep them in shape. The idea is spreading to the other New England States, and the government will have available thousands of cars and trucks in short order.

Many women have volunteered their cars, and they are working now for the State in Massachusetts. A women's motor corps has been formed in Boston and wears uniforms and drives its own cars. No woman is eligible unless she possesses a chauffeur's license, which means passing a road test, and she must also be able to make repairs and put on tires.

The Safety First Committee is to have pennants and a shield made so that people who volunteer may use them in their work, and not be held up when going to forbidden areas.

Louisville Women Learning

LOUISVILLE, KY., April 6—More than a dozen of prominent young women

of Louisville this week began a course of instruction to fit them for service as drivers of automobile ambulances, and should they be called upon by the government even to drive motor supply or equipment transports or scout and dispatch machines they will be ready and anxious to serve.

The class for volunteer ambulance drivers was organized by Miss Elizabeth Bruce among Louisville women who drive their own cars and have become experienced at the wheel. The class was organized to teach the construction of the engine, so that the volunteers themselves could locate trouble. An expert mechanic will conduct the classes each Monday and Thursday afternoon.

S. A. E. Lines Up for Service

NEW YORK, April 9—Over 1500 members of the Society of Automobile Engineers have replied to the questionnaire mailed March 30 requesting information necessary for the classification of members to insure maximum efficiency in co-operation with the United States government. This system of card indexing is part of a campaign to locate each man where he will be of most value in the general plan of military organization.

Ten Ambulances for Red Cross

NEW YORK, April 6—Ten motor ambulances, for use with military base hospitals organized in this city, were recently given to the New York Red Cross. Five of them, to cost approximately \$10,000, were the gift of Jacob H. Schiff. Each of these machines will carry four wounded men reclining or eight sitting.

Metz Preparing Food Crop

WALTHAM, MASS., April 9—The Metz company has gone in for preparedness by allotting to its working forces sections of land surrounding the factory on which to plant during the summer so that they may raise foodstuffs. The company has 40 acres of good soil, and most of this is available for the purpose. The workmen and women will be given time to attend to the farming a couple of times a day.

Indiana Plans Motor Reserve

INDIANAPOLIS, April 9—The motorists of Indiana are being requested by the Hoosier Motorist, the State club's house organ, to enroll in a motor reserve. A strong appeal is being made for greater patriotism and a spirit of awakening to the importance of the international situation.

Maryland Gathering War Data

BALTIMORE, April 9—The Automobile Club of Maryland is gathering data from its members as to what they can contribute in the way of vehicles and service for war purposes.

Used Car Price Record

See Page 8

A New Idea

Why Sales Fall Through

An Important Link in a Sales Promotion Chain

A SALES promotion department, with a wide range of practical co-operation to intensify the work of both salesmen and dealers, has been inaugurated by E. J. Johnson, Denver, Chalmers distributor for Colorado, Wyoming and New Mexico.

"The one idea of this new department is the furtherance of sales by keeping in touch with the sub-dealers particularly in a more intensive way," says Johnson, "and by helping every salesman and every dealer throughout my territory to solve special difficulties, reach prospective customers, sell cars and strengthen the Chalmers service. In other words, to keep every branch of the business 'pepped up' to the highest degree of efficiency attainable."

The chief methods being tested out thus far, and bringing strong evidence of results that pay and pay well, are:

1. Having every salesman determine if possible just what difficulty prevents his making a sale to a prospective customer at a particular time, and what would likely be the strongest line of appeal to reach that particular customer; or, when he makes a sale, to know just how and why he made it, what was the main buying motive of his customer, etc., to aid the salesman himself and the organization as a whole in handling customers of that special type in the future.

Personal Letters Pay

2. Writing personally dictated letters to prospective customers immediately following their talk with a salesman, with a view to removing the difficulty the salesman has encountered. Every effort is made to make this letter fit the individual case in hand, and also to win the prospect's interest through this personal attention.

3. Aiding the sub-dealer in this same way wherever the dealer will furnish Mr. Johnson the name of a prospective customer, what is hindering the sale, and all other information available.

When a salesman fails to close a sale he must fill out this form. It gives facts which can be used in closing the next sale

4. Keeping a careful record of each salesman's prospects, with dates for future calls, etc., to keep up the salesman's interest and insure his follow-up work with proper promptness and enthusiasm. This record includes a master file of all prospect names and a master file of all dates for salesman calls.

5. Helping dealers with their local advertising, window displays, etc.

Watch Little Things

6. Taking care of Chalmers owners in all minor details. This includes sending them written requests to report any difficulties, however trivial, they may happen to have with their cars, and then sending a man from the service department to adjust the trouble and show the owner how to prevent its recurrence. Also sending out letters giving careful instructions concerning special care of cars in the winter, with a formula for anti-freeze mixture, suggestions as to best kind of oil for the Rocky Mountain climate and altitude in winter, etc., and an urgent invitation to inquire for any other information or advice needed. This helps to stimulate year-round motoring, with consequent greater benefits from the car and greater satisfaction with its use.

7. Asking some 600 Chalmers owners for their frank criticisms of their car, and making a booklet of many of these letters from owners to send out as "From the Other Fellow" to answer important questions likely to be in the

mind of persons studying the question of whether to buy a car, what kind of a car would meet their needs, what expenses and perplexities would likely be involved in operating it, etc. These experience statements—not testimonials—from owners contain valuable information from the practical viewpoint of the man who owns and drives a car, and the booklet of letters is made the more valuable in this regard through containing no statement of car prices and no direct advertising whatever beyond a brief description of two leading models.

8. Conducting a two-week free school, open to anybody, to teach mechanical principles of construction and operation, with liberal attention to questions concerning mechanical points of any make of car. This demonstrated to many that the handling and care of a car is not such a problem as they had believed, and also helped many owners to get greater pleasure out of using their machines. This school will probably be repeated once a year, or oftener if justified.

Entertainments Help, Too

9. Giving an occasional entertainment of some kind, remembering customers and acquaintances with unique Christmas greetings and otherwise showing personal interest and winning personal interest in return.

The new department is in charge of Harold W. Hull, who has had extensive experience in motor car advertising.

Salesman Date 191..

☐ Is
☐ Not
☐ Not
☐ Not
☐ Call

Prospect's Name

Prospect's Phone

Address

Business

Number in his family? Does he own a car now?

Make Year Condition

What do you consider his car is worth?

How much has he been offered?

What car interest him most?

When will you call on prospect again?

Did you secure respectful attention from this prospect?

Did prospect show any real interest in your proposition?

How do you know?

What makes you think prospect has any desire for your proposition?

REMARKS

Why did prospect finally buy?

WHAT BUYING MOTIVE DO YOU CONSIDER GOVERNS THIS SALE?
CHECK

☐ Price
Money

☐ Car
Utility

☐ Satisfaction
Price

☐ Satisfaction
Condition

☐ Vehicle
or
Weather

This Store Was Designed to Attract the Ladies

Cleanliness, Order and Comfort are Drawing Trade

EDITOR Motor World: This store is located on South Third street, Louisville, just a few doors south of Broadway, and for location and accessibility is about the best in the city at this time. Broadway is the widest street in the city and Louisville's main thoroughfare running east and west, while Third street is the main thoroughfare for automobiles running north and south.

On a Beautiful Boulevard

The street is without car lines, is asphalted to the city limits, and from there several miles south is a most beautiful boulevard.

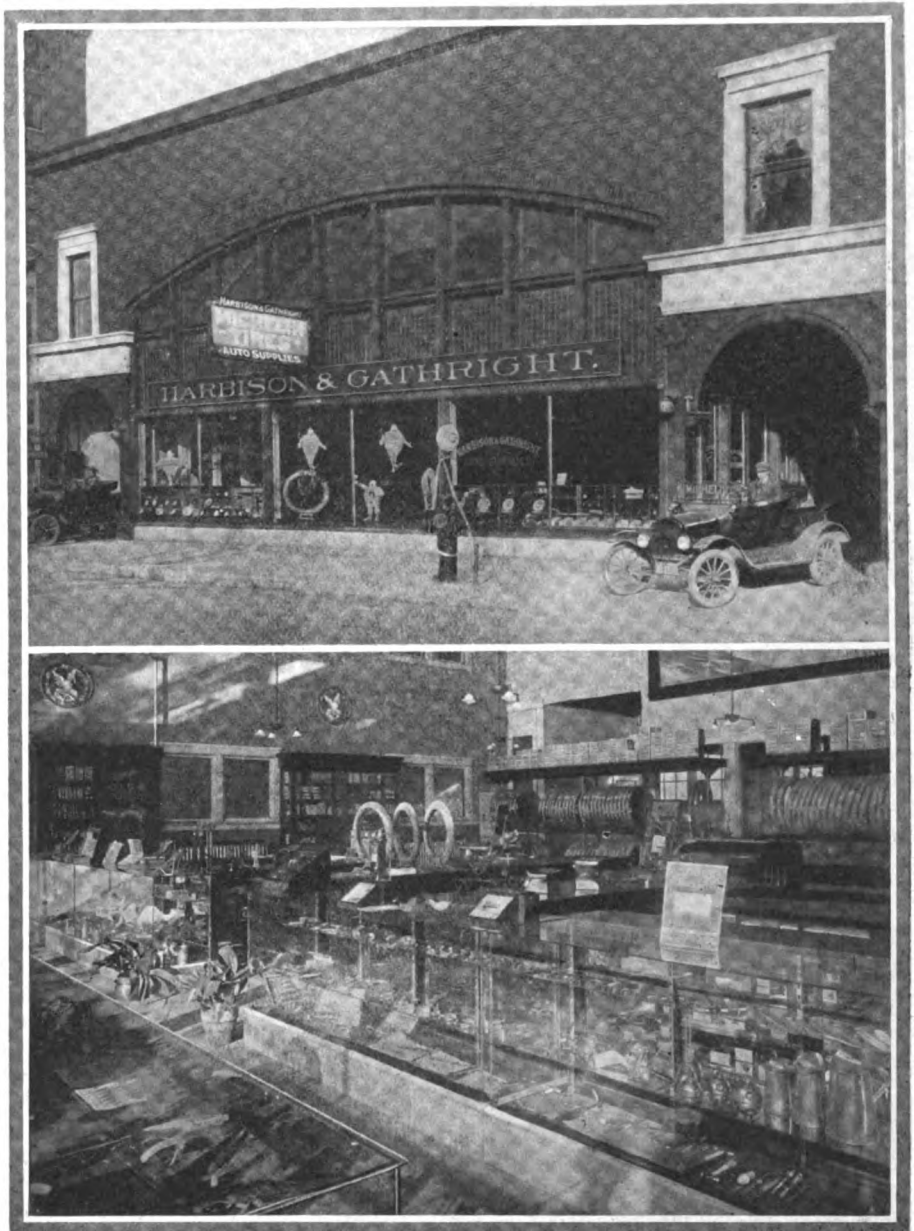
Four service cars are rendering Michelin service day and night. They are painted a beautiful royal purple, and can be distinguished for several squares.

The store has a frontage of 45 ft., has extremely high ceilings and is well lighted. A beautiful Michelin electric sign points the way at night. Plate glass showcases with plate glass sliding doors and plate glass shelves, as well as mahogany fixtures add to the attractiveness of the store.

Drawing the Ladies' Trade

In establishing this retail branch it was our purpose not only to have an outlet for Michelin tires, and give Michelin service to which the public is entitled, but also to have one of the prettiest automobile accessory houses of this kind in the South, and a place where ladies may shop with some degree of comfort and satisfaction.

It is our opinion that too many accessory stores are kept in a jumbled unattractive condition, so much so that ladies are prone to visit department stores rather than accessory houses when in need of lap robes, heaters and other accessories, sales of which rightfully belong to the dealer and garageman.—HARBISON & GATHRIGHT.



Studebaker Makes Changes

SOUTH BEND, April 7—C. S. Connor, formerly assistant manager of the Chicago Studebaker Branch, has been appointed manager of the Omaha branch. J. K. Leander, salesman of the Chicago branch, has taken Connor's place. R. D. Maxwell, who has been manager of the Los Angeles branch, has taken over the territory in and around Birmingham, Ala., and in the future will be the Studebaker dealer in that territory. F. N. Morgan, formerly wholesale salesman and special commercial car representative, has been appointed assistant manager of the St. Louis branch. He succeeds Schmidt, who is now the Studebaker dealer in Memphis. Benjamin Hanger is now the Studebaker dealer in New Haven, Conn. He left the position of assistant manager of the Boston branch to take over this territory. R. J.

Miller, who takes his place as assistant manager of the Boston branch, had been manager of the E. R. Benson Motor Car Co. of Portland, Me.

Chicago Office for Seaman

NEW YORK, April 10—Frank Seaman, Inc., advertising agency, with headquarters in New York, is planning to discontinue their Detroit office and on April 16 will open a Chicago headquarters which will be located in the Monroe Bldg.

United States Tire Men Meet

DETROIT, April 7—A conference of the United States Tire Co.'s salesmen and resident managers of the branches in the Detroit district was held in Detroit Friday and was presided over by W. Solburn Standish, district manager. Among those in attendance were C. S. Putnam, E. A. Montgomery, W. J. Chisholm, C.

T. Day, C. R. Gray, R. E. Cheahan, E. S. Stimpson and H. H. Davies, all of Detroit; C. S. Sowers, and H. V. Filkins, of Grand Rapids; C. Q. Vaughn, resident manager at Lima, Ohio; and G. H. Wood and W. Wilmington, of the Toledo branch.

Kansas City Cancels Race Dates

NEW YORK, April 10—The Kansas City Speedway & Exposition Co. has cancelled all its race dates for the 1917 season, in a letter to the Contest Board of the American Automobile Association. Destruction of the grandstand by fire is one of the reasons for this action.

Oneonta Pleased With Show

ONEONTA, N. Y., April 7—Oneonta's first show closed to-night. It ran the last 3 days of the week. Forty-five cars

of 25 different makes were displayed. Dancing was a feature. The weather was disagreeable and this affected attendance somewhat. The show was managed by John Kelley, of Philadelphia.

More Bosch Contracts

NEW YORK, April 6—The Bosch Magneto Co. has signed contracts with the following companies to use Bosch magnetos for the coming season: Finley Robertson Porter Co., Port Jefferson, L. I.; Bethlehem Motors Corp., Allentown; Larrabee-Deyo Motor Truck Co., Binghampton, N. Y.; Brewster & Co., Long Island City; Roberts Motor Mfg. Co., Sandusky; Kleiber & Co., San Francisco; Winton Co., Cleveland; Jordan Motor Car Co., Cleveland; and the Sterling Automobile Mfg. Co., Amston, Conn.

1000 Cars Built in March

ST. LOUIS, MO., April 7—The Chevrolet Motor Co. of St. Louis constructed 1000 motor cars in March. This large order was rushed through in response to a demand from New York for 1000 cars to be delivered April 2.

Forduplex Changes Its Name

ADRIAN, MICH., April 3—The F. D. Truck & Auto Co. has been formed here. It is the successor to the Forduplex Co. The Duplex Motor Co. of Lansing, Mich., objected to the use of the latter name although the Ford Motor Co. had given its permission. The company is looking for a factory site.

Al Reeke Goes Back to the Retailing of Cars

Opens Agency in Milwaukee and Will Handle Jeffery Car—Has State on Jeffery Truck

MILWAUKEE, April 7—Alfred Reeke, who recently resigned as general sales manager of the Nash Motors Co., Kenosha, Wis., will re-engage in motor car distribution in Milwaukee at once. Reeke, who was identified with the sale of Rambler and Jeffery cars in Milwaukee, for many years prior to joining the factory organization, has formed the Alfred Reeke Co. to act as distributor of Jeffery trucks in Wisconsin and Upper Michigan, and as Milwaukee county dealer in the Jeffery passenger car, which is distributed in the middle and northwestern territory by the Nash Sales Co., Milwaukee. The Nash and Reeke companies will occupy the Jeffery branch house at 455-459 Broadway, Milwaukee, which has been purchased from the Nash com-

pany by Rudolph Hokanson, head of the Nash Sales Co.

Bennet, of Nash, Dead

KENOSHA, WIS., April 6—O. G. Bennet, who was vice-president of the General Motors Export Co. and later resigned to join the Nash Motor Car Co., Kenosha, Wis., is dead. Mr. Bennet died of pneumonia.

Record Studebaker Sales

SOUTH BEND, IND., April 5—The Studebaker Corp. contemplates no change in dividend policy. Car sales for the first quarter of the year were record breaking, amounting to 17,212 cars against 15,580 in the same period last year and 9407 in 1915.

5390 Doble Steamers Ordered

DETROIT, April 5—The General Engineering Sales Co. has received orders, with deposits made on each order, for 5390 Doble steam cars. The business amounts to \$10,106,250 net.

Tires in Demand in Minneapolis

MINNEAPOLIS, April 10—Tires, tubes, oils and greases are leading accessory sales requirements this week, so the accessory houses report. Demountable wheels, spark plugs and speedometers are running close for honors. Electric horns are reported on good call and still another house reports that inasmuch as cars are being prepared for touring nearly every article of the motor supply trade is being called for.

Motor World's Used Car Price Record begins this week on Page 8. Base your trades on resale prices

Hupmobile District Men Hold Sales Meeting at Factory



THESE MEN ARE THE DISTRICT MANAGERS of the Hupmobile Motor Car Co., who gathered recently for a sales conference at the factory in Detroit: 1. F. W. Wilkins, Eastern Canada; 2. C. E. Jeffery, Jr., Boston; 3. L. O. Johnson, Philadelphia; 4. S. D. Briggs, Minneapolis; 5. John A. Fields, Western Canada; 6. S. G. Roberts, Portland, Ore.; 7. C. A. Wallerich, Indianapolis; 8. Robert Overstreet, Dallas; 9. W. J. Carter, New Orleans; 10. John Costolow, Cleveland; 11. H. E. Westerdale, assistant sales manager; 12. J. E. Fields, sales manager; 13. Lee Anderson, commercial manager; 14. O. C. Hutchinson, superintendent of branches; 15. G. H. Holliston, Omaha; 16. V. C. Sorten, New York.

Court Deals Final Blow to Price-Fixing Methods

Sweeps Away What Was Left of Licensing Plans and Classes Them as Subterfuge

WASHINGTON, D. C., April 9—What was left of the old patent-licensing and price-fixing plan has been swept away by the Supreme Court. It held to-day that all such were a "poorly concealed purpose for maintaining and fixing prices to agents and purchasers."

Under the Dick mimeograph decision it had been held that the patent-licensor could designate what products should be used with his machine, but in the Motion Picture Patents case, decided to-day, the Dick ruling is reversed and it is held that a motion picture man may use in the machine he buys or leases the film of any maker he desires to patronize.

Also, in Victor Talking Machine Co. vs. Macy Department Store the court held that "retaining title through a license and royalty arrangement" is more or less a subterfuge to control resale prices.

Apparently, an article merchandised under almost any "plan" is sold, and title "retained" under any restrictive method rests in the consumer or dealer, regardless of theories or technicalities.

A Correction

In MOTOR WORLD for March 28 reference was made to the Barley Motor Car Co., Halladay, Mich., which should have been the Barley Motor Car Co. formerly of Streator, Ill. It was also stated that the Barley Motor Car Co. had been organized in Kalamazoo with a capital of \$200,000. A. C. Barley, president of the company, states that no new corporation has been formed. The Barley Motor Car Co. is still incorporated under the laws of New York.

Will Open Cleveland Plant

DETROIT, April 9—The J. W. Murry Co. will have a plant in Cleveland. A factory of 100,000 sq. ft. of floor space is to be provided and a new Ohio company will be incorporated with a capital of \$500,000. The company manufactures sheet metal parts for automobiles. The Detroit plant and the Cleveland plant will work in close harmony but will be financially separate.

Harroun Fills Directorate

DETROIT, April 9—George F. Monihan has been elected a director of the Harroun Motors Corp. He has been the legal counsel of the Harroun company. The election completes the Harroun directorate which in addition to Mr. Monihan includes: John G. Monhan, former vice-president of the Marion Motor Car Co.; Ray Harroun, former chief engi-

neer of the Marmon and Maxwell companies; Lewis H. Rogers, who was assistant general manager of the Brush Electric Co.; George C. Worthley, former president and treasurer of the Fairbanks Co.; John J. Plath, former sales manager of the Maxwell Motor Co.; Paul H. Bruske, former advertising executive of the Studebaker and Maxwell companies; R. Ward Macey, Jr., former sales executive of the Ford, Franklin and Premier companies, and F. A. Vollbrecht, president of the Neville Steering Wheel Co., and former general manager of the King Motor Car Co.

Fisk Surplus \$1,875,442

BOSTON, April 9—The Fisk Rubber Co. has filed a balance sheet with the Massachusetts Corporation Commission as of Dec. 31, 1916, which shows: Cash and debts receivable \$5,741,219; surplus of \$1,875,442; reserve \$1,146,768; and assets and liabilities, \$27,796,753.

Cincinnati Gets May 30 Race

NEW YORK, April 7—The Cincinnati Speedway has been awarded the May 30 date for a track meet. Both the Chicago and Cincinnati speedways were after the date given up by Indianapolis when it withdrew from all racing activities in 1917 on account of the war. The Cincinnati Speedway has not as yet made known its plans for May 30.

Why Men Win Out

(Continued from page 36)

to-day and that what commands a premium is the man who can do things without being driven, who can take some of the load off the man who pays the salary.

"Each human being is constantly face to face with ideas for his own betterment. If he doesn't see these ideas it is because of his manner of THINKING. He must first revise his thinking machine and then he will see ideas at every step.

"Then, he must TEACH HIMSELF TO ACT. When he knows a thing should be done he should do it at once, not tomorrow. He must get into the HABIT OF ACTING. Acting or not acting is merely a habit and once a man gets into the HABIT of ACTING it is easier to do things than not to do things.

"Every man is made up of two parts. One part likes to move in an easy, even routine way, doing things comfortably and serenely. This first part seems to be born with us, to be created by the sameness of every-day environment. The other part is one we must develop. It is our fighting side. It hates an easy and even way of life. It is aggressive, active, pushing, struggling upward. It is initiative.

"We must train and increase this latter part. We must make it dominant and strong. We must make it take the other part of us by the collar and yank it out of the rut and to success. It's a hard fight at the start but a cinch at the finish."

United States Rubber to Pension Its Old Workers

Men of 65 and Women of 60 Who Have Been on Payroll 20 Years Are Eligible to Benefits

NEW YORK, April 7—The United States Rubber Co. has started its new pension plan, which affects male employees who have reached the age of 65 years and female workers of 60 years whose employment covers a period of 20 years. The Pension Committee may also retire at its discretion employees who have become disabled, provided they have been on the pay roll for 15 years. The annual pension is to equal 1 per cent of the average yearly wage for 10 years prior to retirement multiplied by the number of years of employment. Pensions are not to exceed \$5,000 a year, however, or run below \$240 a year. Employees absent on military service for the country will not have such absence deducted from the computation of their years of service nor will such absence constitute a break in the continuity of employment for purposes of the pension benefits.

Overland to Make Aero Motors

TOLEDO, April 10—*Special telegram*—The Willys-Overland Co. has contracted with the Curtiss Aeroplane Co. to manufacture 4500 Curtiss aero motors for the government. These will be made at the Elmira, N. Y., plant. Work has already been begun in the Elmira and Toledo plants on the special tools for this work.

This contract will in no way interfere with car production.

Packard Making Army Trucks

DETROIT, April 10—*Special telegram*—Packard is already delivering trucks to the government, but is still taking care of its normal truck business.

Harry Ford Federal Advisor

DETROIT, April 10—*Special telegram*—Harry W. Ford, president of the Saxon Motor Co., has been appointed a member of the National Advertising Advisory Board, which will have charge of government advertising during the war. Advertising is to apply to recruiting and other war work.

Doble Steam Merger Is Off

DETROIT, April 7—The special meeting of stockholders of the Michigan Stamping Co. scheduled for last night for the purpose of considering a merger with the General Engineering Co. in a \$10,000,000 corporation has been indefinitely postponed. The plan has been abandoned for the present.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Louis Logie is henceforth to be Maxwell supervisor for all of Canada for the Maxwell Motor Co. of Canada, Windsor, Ont., with full charge over both sales and service. Logie has for several months been the Maxwell Canadian zone supervisor in charge of Eastern Canada, with his headquarters in Windsor. In his enlarged field he will continue his Windsor office, that being the Maxwell Canadian headquarters and a center location in the territory.

M. I. Brock, sales director, and **John C. Spears**, manager of production, have designed from the American Motors Corp., Plainfield, N. J.

R. T. Gray, formerly advertising manager of the Haynes Automobile Co., has joined the Shuman Advertising Co.

Wm. H. Miller, formerly with the Acheson Graphite Co., Buffalo, has become associated with the Flexible Armored Hose Co., Buffalo. He will cover the East and Middle West.

E. G. Soward has resigned as passenger-car sales manager of the Nash Motors Co., Kenosha, and will enter a business of his own.

S. Uswald, for the past 9 years with the Bosch Magneto Co., New York, in the service, sales and advertising departments, has joined the P. J. Durham Co., New York, as assistant to sales manager **H. B. Shontz**.

J. M. Schlendorf has been appointed director of sales of the Central Steel Co., Massillon, Ohio. He was associated with the U. S. Steel Corp. for 14 years. For the last 2 years he has been with the Willys-Overland Co. directly in charge of its purchases of special steels and all metals.

W. K. Chilcott, who was sales manager of the General Motors Truck Co., Detroit, will head the Chilcott-Nash Co., Seattle, which has been organized to distribute Nash cars in the Northwest.

G. A. Richards has been promoted from manager of the Pittsburgh Firestone branch to manager of the Cleveland branch. He is succeeded in Pittsburgh by **J. H. Dutch**.

Guy Martin has joined the field force of the C. L. Bering Co., accessories, 1009 Capitol Avenue, Houston, Tex.

R. C. Miquelon, Quebec City, has been appointed by the Maxwell Motor Co., Ltd., as special representative for the Province of Quebec. He has for some time been the Eastern Canadian representative for the Chalmers Motor Co. of Canada.

John T. Clinton, manager of the Buffalo branch of the Firestone Tire & Rubber Company, has been sent to Boston to manage the branch there, succeeding **Dan C. Swander**, who has gone to join the Motor Parts Co. Clinton was temporary manager of the Boston branch for some months following the retirement of **Thomas J. Glenn** a year ago.

Robert Ritchie, advertising manager for the C. S. Henshaw Co., Boston, Dodge dealer, has joined the Alvan T. L. Fuller Co., to handle Packard advertising.

J. H. Dutch, of the Firestone Tire & Rubber Co. Pittsburgh branch, has been appointed manager of the Firestone branch in Cleveland.

John W. McNair, formerly with the Firestone Tire & Rubber Co. Pittsburgh branch, has been appointed sales manager of the

Topping Motor Truck & Machinery Co., Pittsburgh, Gramm-Bernstein and Day-Elder truck distributors.

W. C. Blake, for 5 years manager of the Syracuse branch of the Goodyear Tire & Rubber Co., has been promoted to manager of the company's New York branch.

Manlius Orr, branch manager for the Goodyear Tire & Rubber Co. at Charlotte, N. C., will become manager of the Syracuse, N. Y., branch.

J. V. Thomas is now associated with the F. B. Stearns Co., Cleveland, in the capacity of assistant sales manager and advertising manager. He was formerly with the Moon Motor Car Co., St. Louis, where he was associated in a similar capacity for several years.

S. Uswald, for the past nine years with the Bosch Magneto Co., in the service, sales and advertising departments, has joined the P. J. Durham Co., 244 West 49th Street, New York, as assistant to the sales manager.

Hood Tire to Expand

WATERTOWN, MASS., April 7—To take care of its growing business and arrange for a production of 2000 tires a day the Hood Rubber Co. is erecting a large addition to its plant. The new structure under way will provide for 80,000 sq. ft. of floor space and it will allow for a continuous working plan of 24 hours. At present the company turns out 300 tires a day, but this will shortly be jumped to 900 and then eventually to 2000.

G. M. Truck Coast Branch

SAN FRANCISCO, CAL., April 7—The General Motors Truck Co. has opened a factory branch in San Francisco. This branch is in the charge of **W. B. Cochran**.

Price News

Some Maxwell Prices Raised

NEW YORK, June 6—Maxwell car prices, on May 1, will be increased \$30 on the two-passenger and five-passenger models. The other models, including a coupe, Sedan, and a towncar, remain unchanged. The two-passenger car sells at \$620 now and the five-passenger at \$635.

Hurlburt Trucks Go Up.

NEW YORK, April 6—The Hurlburt Motor Truck Co. will increase its prices May 1 approximately 10 per cent. On that date the following prices will prevail: 1½ ton, \$2,350, raised from \$2,250; 2 ton, \$3,300 from \$3,000; 3½ ton, \$3,850 from \$3,500; 5 ton, \$4,600 from \$4,250; and 7 ton, \$5,500 from \$5,000.

More Tires Go Up

NEW YORK, April 6—Further price increases among the tire companies are reported this week, many of the remaining companies revising their listings about 10 per cent as did those companies the previous week. Empire is 10 per cent higher through its whole list; Globe is 5 to 10 per cent higher; Lee is higher; and Miller has gone up 10 to 12 per cent. Pennsylvania Rubber expects to announce an increase soon.

Electric Men Plan to Push Use of Electrics

Will Meet in New York April 19 to Consider More General Use of All Types

NEW YORK, April 9—A conference of manufacturers of electric passenger and commercial vehicles, electric industrial trucks, batteries, tires and accessories will be held April 19 at 1.30 p.m. at the headquarters of the National Electric Light Assn. in the Engineering Societies Building. This meeting is called for the purpose of working out a plan of definite co-operation between manufacturers and central stations with a view to promoting a more general use of electric vehicles. Tentative program includes the following features: 1—Analysis of the present electric vehicle situation and the purposes of this conference, by Chairman **F. S. Mansfield**. 2—A paper by **C. D. Fairgreave**, Anderson Electric Car Co., on Advertising and Publicity. 3—A paper on getting local distribution, by **P. D. Wagoner**, General Vehicle Co. 4—The charging problem in vehicle selling, by **C. A. Street**, Walker Vehicle Co. 5—The Electric Industrial Truck, author not yet determined. 6—Paper by **E. P. Chalfant**, Anderson Electric Car Co., on Co-operation.

Beaver Not Bought By Inter-State

Editor Motor World: We would appreciate your assistance in correcting an erroneous report which has appeared in several newspapers and different publications, in which it has been reported that the Inter-State Motor Co. has purchased the Beaver Mfg. Co., Milwaukee, and that the Inter-State Motor Co. is building their own motors in said plant. We would appreciate your correcting this report by stating that the Inter-State Motor Co. has not purchased the Beaver company, but has made arrangements to take over the entire output of the Beaver company for the coming year.—Inter-State Motor Co., Muncie, Ind.

Mott Moving to Jackson

JACKSON, MICH., April 7—Within 60 days the Mott Wheel Works, now in Utica, N. Y., will be in operation at Jackson, Mich. This will bring the Perlman part of the Mott Wheel Works to Jackson, also, and that will be added to the Perlman Rim Co. plant in that city. The balance of the \$80,000 needed to bring the Mott plant to Jackson was raised early this month. It is reported that arrangements have been practically completed through the courtesy of the Briscoe Motor Corp., by which that company will surrender the former Ames-Dean plant on Wildwood Ave., to the new corporation.

Used Car Auction-Show Planned in Kansas City

To Be Held in Convention Hall
April 24-26—No Admission —
Sales the Object

KANSAS CITY, April 7—A used car show and auction is to be held in Kansas City April 24 to 26, in Convention Hall, managed by officials of the Hall, and participated in by probably 20 or more dealers.

The event was proposed and will be handled entirely by officials of the hall, Grid Kauffman attending to details; he is assistant manager of the big building. Spaces 7 x 20 have been marked on the arena floor, a double row down the center, and rows around the edge. Cars will be backed into the spaces. The two aisles are 20 feet wide. The floor will accommodate 126 cars at one time. Space 20 x 20 feet is left for the demonstration of cars while being held up at auction. Dealers may take as many spaces as they please; most are engaging one and two. They will have the privilege of taking cars out of the hall at any time for demonstrating; when one car is sold, the dealer may bring another car to his space. Each space is sold for \$25, and there are no additional fees.

The management of the hall will pay all expenses of decoration, and general publicity. The possible revenue is about \$3,000. The hall rents for \$500 a day, or \$1,500 for the three days, and a thousand dollars will probably be spent on advertising. There are about 2000 seats that would be useful for spectators. No admission will be charged. The management will give tickets to all entering dealers, one of which will draw a used car at the end of the show.

Liberty Adds Springfield Coupe

DETROIT, March 27—The Liberty Motor Car Co. has added a Springfield type of coupe with a seating capacity for four passengers which sells for

\$1,795, with five wire wheels at \$90 extra. It is mounted on the standard Liberty chassis and makes an all-season body with glass enclosed sides or open four-passenger roadster as desired. One of the features of the body are the long, double side windows which permit easy range of vision. The seats are divided in front. The Liberty touring cars and roadsters are also equipped with detachable tops if desired.

Valveless Engines From Grand Rapids

GRAND RAPIDS, Mich., April 6—The Universal Valveless Four-Cycle Motor Co. will change its name to The Muskegon Engine Co. The company will locate in Muskegon and erect a factory beginning in June. The Clark-Anderson Motor will be manufactured as well as other types of motors. These decisions were reached yesterday by the board of directors of the company at the annual meeting. The board is composed of C. E. Johnson, H. Morton and D. Campbell, all of Muskegon; Dr. H. L. Schuh, J. A. Mohrhardt, Peter De Pagter and Joseph Tazelaar, all of Grand Rapids, Mr. Johnson being president and general manager, and Dr. Schuh is secretary and treasurer.

Briscoe Retires Temporarily

JACKSON, MICH., April 6—Benjamin Briscoe, president of the Briscoe Motor Corp., has obtained a leave of absence from his duties for several months and will go East for treatment for eye trouble. During Briscoe's absence, Frederick W. Cowan of Chicago will handle the business of the company. The eye trouble from which Briscoe is suffering has been developing for several months.

Spranger Getting Ready

DETROIT, April 7—The Spranger Wire Wheel Co. will start manufacturing in their new plant within 30 days, and will expect to be working there in full force by June 15. The new plant is located at Parkinson and Clayton Avenue, and will cover approximately 4½ acres.

Nashville Sets Out to Make Itself Some Money

Forms an Association in Spirit of
Co-operation and Plans to
Hit Trade Abuses

NASHVILLE, TENN., April 7—The Nashville Automobile Trade Association was organized April 4 by dealers, garagemen, accessormen and repairmen, with an initial membership of forty concerns. H. O. Blackwood, president of the Blackwood Tire Co. and the Blackwood Auto Co., was elected president; W. Dake Caldwell was elected vice-president and Lawrence Hirsig was made secretary and treasurer. The directors are Frank Stockell, Edward Polk, James Austin, James Frazier, Murray Hogan and Frank Fisher.

In order that the directorate might eventually be composed as largely as possible of representatives of different branches of the motor trade, it was decided that the present board shall hold office for 3 months, which will give the members time to become acquainted and learn the "who's who" of the trade in this city. The association will adopt a constitution, bylaws, etc., at a later meeting, a committee being appointed for this purpose.

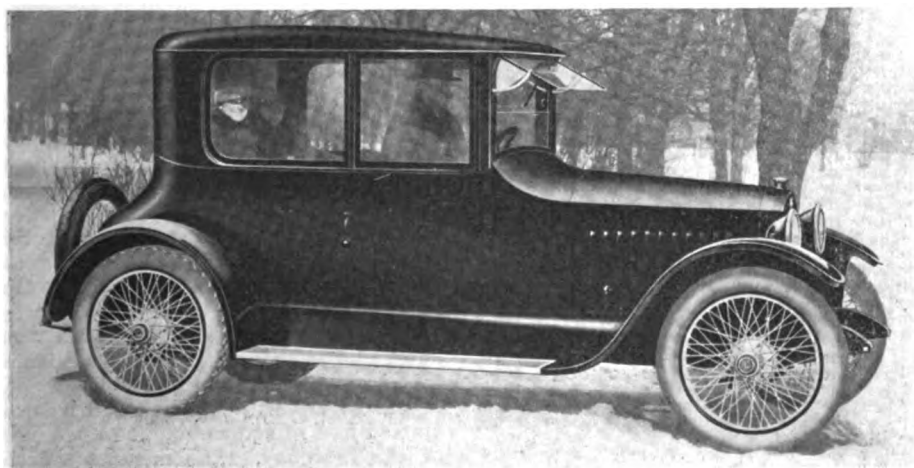
At the organization meeting, the members took occasion to discuss various features of the motor car business. Among the evils to be corrected is giving of many accessories with a car as a premium to the customer. Another is that of motor car dealers selling accessories at cost.

The used car problem is also to come up for consideration. One dealer declared that in offering an old car in trade, the customer invariably told of a larger offer from another dealer, with the temptation being presented to exceed this offer.

Efforts will be made to bring in every member of the trade in the city and a campaign will be begun to this end. Meetings will probably be held every two weeks.

Hanson Plant Ready in 30 Days

ATLANTA, GA., April 5—The plant of the Hanson Motor Co. is being rushed to completion and will be finished in 30 days. The building is 700 ft. long and exclusive of equipment cost \$50,000. Production will start in May at 10 cars a day, and will increase as contracts require. The plant has a capacity of 100 cars a day without changes or additions. The Hanson-Six which the company will build has a motor especially designed by Don M. Ferguson. The price of the car has not yet been determined, but will be somewhere in the \$1,000 class. Officers of the company include George W. Hanson, president; Arthur Burdett, vice-president and sales manager, and Don M. Ferguson, chief engineer.



THE NEW LIBERTY COUPE, of the Springfield type, seats four and is suitable for use the year around. It sells for \$1,795. Wire wheels are \$90 extra

Facts Disclosed About New York-Jersey Tunnel

**May Be Free or Toll—Cost Placed
at \$10,000,000—Length More
Than Mile—26x13 Feet**

NEWARK, N. J., April 10—The proposed traffic tunnel under the Hudson River would be free or a toll tube, according to whether it is built by the government or the Public Service Corp. The estimated cost is \$10,618,000. The termini are Twelfth Street, Jersey City, and Canal Street, New York. If begun this year it would be completed by 1920.

The length of the tunnel under the river would be 5495 ft. The interior space, according to plans, would be 26 ft. wide, 13 ft. high. The roadway proper would be 17 ft. between curbs. The grades of the approaches, maximum, would be 3.85 per cent on the Jersey side and 4.55 per cent on the New York side.

The tunnel will be ventilated by drawing in fresh air and expelling vitiated air. The practicability of the method of ventilating the proposed tunnel was confirmed by a series of experiments made in this city.

The estimated traffic through the tunnel in 1920 will be not less than 2,000,000 vehicles, 60 per cent of which will be motor-driven. If built by the Public Service Corp. the toll will be 35 cents, which means that probably more than 60 per cent will be motor-driven, as it is most probable that drivers of horse vehicles will use the ferries at the same or cheaper prices rather than taking the long haul under the river.

The probable effect of a vehicular tunnel on the lighterage system would be first to lessen the congestion; second, to speed up shipments of freight, etc., to ships in Hoboken, and third, would reduce freight rates by eliminating lighterage charges.

St. Louis Used Cars Sell Well

ST. LOUIS, April 9—Used cars are in sharp demand here from the companies that rebuild and refit them, as practically all dealers do to their own cars which they accept on sales for new ones. There were fewer sales the last week than a month ago because the supply is running out. This is due to two reasons, first because of the early sharp demand, and second because of the lack of surplus new cars, dealers have not been urging new cars on those having good old ones. The lack of a surplus of new cars for immediate delivery since fall has stimulated the used car market.

Mexico Imports 775 Cars

WASHINGTON, D. C., March 29—Seven hundred and seventy-five automobiles have been imported into Mexico during the month of March as a result of the act of the de facto government removing import duties from all classes of

motor vehicles. The law provides that each importation of this sort shall be accompanied by a consular invoice. In the middle of the month the Mexican consul at Nogales, Ariz., stated that 400 more automobiles would enter his country by the end of the month; and there had already been 375 imported. Sonora and Sinaloa are heavy users of motor vehicles. Sonora has a motorized mail service in districts where there is no railroad communication.

Hudson-Philips Gets Harroun

ST. LOUIS, April 2—The Hudson-Philips Motor Co., Hudson distributor, has contracted to handle the Harroun car. Its territory includes St. Louis and environs.

Gray & Davis Lamps for Pullman

BOSTON, March 31—Gray & Davis, Inc., have closed contracts with the Pullman Motor Car Co., York, Pa., for the equipment of Pullman cars with Gray & Davis lamps.

Champion to Enlarge Plant

FLINT, April 2—The Champion Ignition Co. will add another story to its plant. This will increase the floorspace 10,000 sq. ft. and is the third addition in 18 months.

Motor Securities

	April 7, 1917	Bid	Asked
*Ajax Rubber Co.	72	75	
*J. I. Case T. M. Co. pfd.	82	85	
Chalmers Motor Co. com.	20	23	
*Chandler Motor Car Co.	97	99	
Chevrolet Motor Co.	115	120	
Fisher Body Corp. com.	30	38½	
Fisher Body Corp. pfd.	90	96	
Fisk Rubber Co. com.	66	75	
Fisk Rubber Co. 1st pfd.	102	106	
Firestone Tire & Rubber Co. com.	138	142	
Fisk Rubber Co. 2nd pfd.	70	100	
Firestone Tire & Rubber Co. pfd.	107	108	
*General Motors Co. com.	114	115	
*General Motors Co. pfd.	87½	89	
*B. F. Goodrich Co. com.	53	54	
*B. F. Goodrich Co. pfd.	109½	112	
Goodyear Tire & Rubber Co. com.	238	242	
Goodyear Tire & Rubber Co. pfd.	105	107	
Grant Motor Car Corp.	6	8	
Hupp Motor Car Corp. com.	5	5	
Hupp Motor Car Co. Corp. pfd.	78	84	
International Motor Co. com.	16	16	
International Motor Co. 1st pfd.	70	70	
International Motor Co. 2nd pfd.	30	30	
*Kelly-Springfield Tire Co. com.	56	57	
*Kelly-Springfield Tire Co. 1st pfd.	90	91	
*Lee Rubber & Tire Corp.	21½	22	
*Maxwell Motor Co., Inc. com.	52½	54	
*Maxwell Motor Co., Inc., 1st pfd.	67	69	
*Maxwell Motor Co., Inc., 2nd pfd.	33½	34	
Miller Rubber Co. com.	230	235	
Miller Rubber Co. pfd.	104	106	
Packard Motor Car Co. com.	161	161	
Packard Motor Car Co. pfd.	101	101	
Palge-Detroit Motor Car Co.	37	38	
Peerless Truck & Motor Corp.	14	17	
Portage Rubber Co. com.	151	159	
Regal Motor Car Co. pfd.	26	26	
*Reo Motor Car Co.	35	36	
*Saxon Motor Car Corp.	52	53	
Springfield Body Corp. com.	68	75	
Springfield Body Corp. pfd.	108	115	
Standard Motor Construction Co.	13	13½	
*Stewart-Warner Speed. Corp.	81	82½	
*Studebaker Corp. com.	93½	93½	
*Studebaker Corp. pfd.	104	106	
Swinehart Tire & Rubber Co.	74	81	
United Motors Corp.	35½	36½	
*U. S. Rubber Co. com.	56½	56½	
*U. S. Rubber Co. pfd.	108½	109	
*White Motor Co.	47½	48	
*Willys-Overland Co. com.	32	32½	
*Willys-Overland Co. pfd.	95	97½	

*At close April 7, 1917. Listed N. Y. Stock Exchange. †Par value \$10

Rubber Holds Steady in Midst of War Situation

**Factories Have 30 Days' Supply—
Vague Rumors About Federal
Control of Crude**

NEW YORK, April 9—The crude rubber market held a comparatively steady tone during the past week despite the entry of the United States into the war and other adverse developments. In fact, importers generally are still inclined to be bullish on rubber.

There have been vague rumors in regard to the government taking over control of the crude rubber supply throughout the country, but this is not looked on as probable by authorities in the trade. It is natural that a policy of conservation should be observed and the creation of a reserve supply by the government buying quantities of rubber in the market is mentioned as a possible development, but the feeling is very strong that there is no need for strenuous measures. It is suggested that the rumors which have been circulated are largely due to an endeavor on the part of traders to force up prices.

The 400 rubber factories of the country have an average supply of crude rubber to last 30 days, although, of course, the smaller plants are frequently stocked up sufficiently for from 3 to 6 months operation. Manufacturers have been buying only in 5- or 10-ton lots for immediate requirements during the past week. The future outlook in the crude rubber market depends on the protection of sea routes from rubber producing centers and the maintenance of ample tonnage to handle shipments. Many shipments are on their way here by the three routes followed. About 70 per cent of our crude rubber supply comes from the British and Dutch East Indies and the other 30 per cent from Brazil and other Latin American countries.

While it is not expected that rubber prices will be lower during the war, no radical departure from normal conditions is anticipated for the immediate future so far as the crude supply is concerned.

Are Driving Overlands Overland

ST. LOUIS, April 9—Following a successful drive of cars from Toledo last week, the Overland Co. of St. Louis is sending a second party of dealers to Toledo to bring home cars in an effort to keep up normal distribution in this territory. More than 50 dealers in the St. Louis territory went with the first party which worked under the direction of E. E. Denniston, wholesale sales manager, and each dealer was accompanied by one or more drivers. One dealer took seven drivers with him. The drive was started in a rainstorm and it rained most of the first day. The members of the party took various routes. All reached home without damage to cars. The second drive is on for this week, the party

being in Toledo to-day. The Mississippi Valley Motor Co., Oakland wholesale distributor, has almost quit shipping from St. Louis by rail. The Oakland cars are being shipped here dismantled and assembled. Because of shortage of freight cars, dealers have been coming as far as 300 miles to take home cars. Those for Mississippi and Louisiana have been shipped by river.

Still Winter-Driving in Colorado

DENVER, April 1.—About 60 winter motoring enthusiasts drove through a snowstorm 56 miles from Denver to Greeley last night for the final event of the winter driving program conducted by the Automobile Trades Association of Colorado, with the aid of the Denver Motor Club, the Civic & Commercial Association and other bodies. This was the fifth dinner-dance affair arranged by the joint committee representing the different organizations, and all were well attended.

The plan has stimulated a lively interest in year-round motoring, as advocated by **MOTOR WORLD**, and has done a great deal toward increasing appreciation of Colorado's roads and climate and the enjoyment of a car in winter. Secretary Edgar W. Johnson, of the trades body, says that more people have kept their cars in service in Denver and vicinity this year than ever before during the winter months, and that substantial business results have been reported from all branches of the trade.

Dealers Cut Tax in Half

DENVER, April 3.—A yearly license fee of \$50 must now be paid in Denver for conducting a strictly used car business, while only \$25 is required where used cars are sold in connection with a regular business in new cars. An ordinance to this effect, recently drawn by the Automobile Trades Association of Colorado, was passed last night by the city council. Heretofore there has been no distinction made between the two methods of dealing in used cars, but the new car dealer has had to pay the full \$50 license fee for selling used cars incidentally. In fact, the business came under a general ordinance to license and regulate dealing in secondhand goods. The new ordinance, which applies strictly to motor cars, does not require giving bond or reporting purchases to the police, as does the general ordinance. A fine of \$10 to \$200 is provided for operating a used car business without proper license.

Soaps Coming From Milwaukee

MILWAUKEE, March 31.—Fred Goetz, owner of the Fred Goetz Sales Co., motor car supplies and accessories, 1105 Vliet Street, Milwaukee, has organized the Fred Goetz Co. of Milwaukee to manufacture and market soaps, oils, greases, cleaning compounds and other similar goods. The new company is capitalized at \$25,000.

Flag Holders Come into Demand; Sales Increase

Flags Too Are in Demand Among Car Owners—Spotlights Also a Big Seller This Summer

New York, April 9.—Patriotism has created a demand for devices to hold flags for display on automobiles. The entrance of the United States into the war has brought this comparatively unimportant type of accessory into the front selling rank, according to reports from some parts of the country. The approach of spring has stimulated the trade in all sorts of accessories. A canvass of the dealers to see what was selling best revealed no universal favorites. The demand for spotlights, bumpers, carbureters and speedometers is good.

KANSAS CITY—Flags, flag standards, devices to hold flags for display on automobiles, and stock in companies planning to make flag standards for automobiles, have been "best sellers" in Kansas City the past week.

Auto locks have gone strong in Kansas City the past two or three weeks, since the new traffic ordinances went into effect. The ordinances prohibit chaining the wheels. A lock is the answer. Carbureters have been going with surprising celerity.

WILMINGTON, DEL.—If tires are eliminated as "accessories," being regarded as necessary parts of all cars, bumpers and spotlights are the greatest accessories in the Wilmington territory, according to local dealers.

AUSTIN, TEX.—The fact that automobiles are used continuously throughout the year in this part of the country makes the accessory business a continuous one. There is, however, in each spring season unusual activity in this branch of the trade. It is stated by local dealers that the demand for all lines of accessories is remarkably good and that it is characterized by no particular feature. It is noticeable that the dealers are carrying much larger stocks than formerly and that they are using better methods of securing trade. This is largely due, it is admitted, to the efficiency campaign which the Motor World has been conducting through its columns.

LOUISVILLE — Louisville's leading accessory dealers report an unprecedented demand for spot-lights and devices that add to touring comfort, and are selling more inside boots, pressure gages, vulcanizers, tools, etc., than ever before. Big sales are reported on tires, tubes, piston rings and Ford accessories.

ALBANY, N. Y.—Albany dealers in motor car accessories are having a harvest time just now. They find that their best accessory trade now is in speedometers and in fire extinguishers. In many instances horns have to be renewed, and there is a big business in this.

HARTFORD, CONN.—Along with the increased demand for cars has come a clamor for fittings to be put on to them. Naturally tires sell the best of anything. Oils and greases are going well, due, in one sense, to the prospects of an increase in price.

Ford specialties are going very well indeed. There seems to be a tendency to fix up the old cars by equipping with up-to-date ignition.

YORK, PA.—The popularity of the automobile search light is gaining in this territory and is one of the most salable articles of the accessory business. Diffusing lenses, bumpers, shock absorbers, mechanical tire pumps and other labor saving devices and accessories, to add pleasure and comfort to summer motoring, are especially sought after by the motorist at this time. Heavy sales of tires are reported by the accessory dealers owing to the approach of the touring season, and the sale of automobile oils and greases is said to be unusual.

PHILADELPHIA, PA.—All lines of accessories in this city are moving so fast that it is with difficulty that the dealers here are able to tell just which particular line is meeting with the greatest demand. In the amount of business done, tires are probably selling the best, but in other specialties spotlights are meeting with very marked success.

A. A. A. Issues Contest Records

NEW YORK, April 2—"1916 Automobile Contests" is the title of a booklet issued by the contest board of the American Automobile Assn. It gives the results of all automobile contests held in 1916 under the rules and with the sanction of the A. A. A., and is compiled from the official records in the office of the contest by W. Harvey Traband, Jr., and T. B. Shoemaker. Copies of the book may be secured from the contest board of the A. A. A., 501 Fifth Avenue, New York. The price is 50 cents per copy.

S. A. E. Boosting Membership

NEW YORK, April 9.—Over 150 applications for membership have been received at the headquarters of the Society of Automobile Engineers since March 14. There are now nearly 100 applications ready for consideration at the next meeting of the Council, which is scheduled for April 16 and 17 at the Hotel Congress, Chicago. Applications for membership are coming in steadily at both the Detroit office of the membership committee and the New York headquarters of the society, indicating that the S. A. E. campaign for 2500 new members is getting well under way.

Open Harroun Plant

DETROIT, April 6.—Informal opening of the Harroun Motors Corp. new plant at Wayne will take place Wednesday, April 11. The formal opening is scheduled for Sunday, April 15.

Summer Looks Promising in Kansas and Oklahoma

Oil Wells Crowding in Close to Kansas City and Bad Spots Are More Than Offset

KANSAS CITY, MO., April 7—March has been quite up to expectations in the distribution of automobiles in the Kansas City territory. But the trade has been disturbed by the necessity of revising downward some of the estimates of cars needed in certain sections. There will be a sharp falling off in the demand, it is now estimated, in central and western Kansas, and parts of Oklahoma, due to the lack of moisture for wheat.

Kansas City distributors are hearing of thousands of acres being plowed up, to lie fallow for the summer. Other thousands will be planted to broom corn, kafir and corn, which will yield their crops months later than the wheat would yield—and which would be sold, and the money put into circulation, months after that. Where wheat money would get into the community in July and August, the corn money may be held over till January; or, if the corn is put into live stock, even more.

Offsetting the wheat condition in Kansas and Oklahoma, is the status of wheat in eastern Kansas, and the prospects in western Missouri, districts that have not been counted on for much business because of crop failures for two or three years, and that promise excellent returns this year. Oklahoma's cotton, also, may help to make up for any wheat shortage.

Oil will more than offset any possible loss from wheat failure, distributors say. It will be remembered that liberal estimates had been made for motor car sales due to oil development two months ago. Events have proved that these estimates were too low.

Not only are the oil fields producing quite up to expectations, and taking automobiles in larger numbers than anticipated, but new fields are being discovered. The developments are reaching closer to Kansas City. An entirely new prospect for production has been discovered in Franklin County, less than 40 miles from Kansas City, and wells are to be put down around Kansas City itself.

Distributors take different views of the effects of the war scare—and of a declaration of war. Some say that sales are already being affected, both because of prospects planning to go to war, or fearing a call; and because of business men fearing a possible stringency and let-up in business. Others say that war will make sales better; they have two reasons, also. One reason is that the Kansas City territory will enjoy even higher prices for its products, and the other reason is that with a shortage

of men more motor equipment will be required.

Local trade in Kansas City has been beyond expectations, the freight congestion being responsible for failure of dealers to make deliveries of cars sold. Some dealers report cancellation of sales thus delayed, because of the war developments. Parts dealers and repairmen are said to be suffering more than new car dealers, through the congestion, which has not improved materially.

One Kansas City distributor who recently had a large driveout to the territory reports that his dealers are now requesting the privilege of driving from the factory—a privilege he is loth to grant.

Tires Coming From Texas

DALLAS, April 7—A tire factory with a capital stock of \$250,000 and a plant to cost \$80,000 is to be established in Dallas by the Southwestern Tire & Rubber Mfg. Co. Officers of the company are: President R. L. Cameron; vice-presidents, W. W. Taxis and L. G. Murray; secretary, W. E. Shuttles; treasurer, J. G. Gillespie. They are all Dallas men. The plant is to contain 30,000 sq. ft. and 500 tires and 1500 inner tubes will be manufactured daily. The location of the plant will be selected within a few days.

Ohio Elects Officers

CLEVELAND, OHIO, April 4—Royal R. Scott, Toledo, Ohio, secretary of the Willys-Overland Co., was elected president of the Ohio State Automobile Association at the association's annual convention held in Springfield March 30. He has been vice-president for two terms and succeeds Richard H. Lee, of Cleveland, who served two years as president and declined re-election. Fred H. Caley, of Cleveland, was again named secretary and Harry E. Freeman, of Springfield, treasurer. The vice-presidents names in order are: George H. Kile, of Akron; F. F. Bentley, of Warren; George E. Mentel, of Springfield, and E. R. Roemer, of Zanesville. The terms of three trustees expired. C. C. Janes and Jacob L. Will, of Columbus, were re-elected, and Richard H. Lee was elected to the board.

Chelsea Company Incorporated

CHELSEA, MICH., April 4—The Chelsea Steel Ball Co. incorporated at Chelsea, Mich., for \$75,000. Incorporators include T. F. Callohan, C. Lehman, M. J. Dunkel and L. P. Freeman. The company is erecting factory buildings.

South Carolina Revises Standards for Gasoline

State Changes Specifications to Admit Lower Grade Which Will Still Be High Quality

SAVANNAH, GA., April 7—On June 1 a change in the specifications for gasoline in South Carolina, and consequently a new standard for gasoline is to be effective. The change will considerably lower the present standard, but will still give a high grade of gasoline. It should also result in an annual saving on prices to the consumers of about \$120,000.

The new specifications call for not more than 16 per cent residue at 150 deg. C., with distillation and flash test requirements the same as heretofore, and fixes the dry point at not more than 200 deg. C. Heretofore the residue was 8.0 per cent and there was no dry point specification.

Heretofore the requirements have forced refiners to ship only a high grade light gasoline specially distilled for this market. Under the new standard all first grade straight run gasoline, or about the same quality furnished the United States Navy, will be admitted.

5000 Haynes Average 15 M. P. G.

KOKOMO, IND., March 30—Effect of road conditions upon the cost of running a car was brought out very forcibly in the results of an investigation of the performance of 5000 Haynes sixes now in the service of owners. Fuel, oil and tire mileages were greater on the average in California than in any other part of the United States. In the Dakotas, Minnesota, and many of the states below the Mason and Dixon line, a very much lower mileage was shown. The maintenance cost of cars used by farmers were 10 per cent less than the upkeep of Haynes sixes belonging to city residents. An average of 15 miles to the gallon of gasoline and over 200 miles to a quart of oil is the finding of the inquiry. Investigation went into every state in the union, as well as a number of foreign countries. It was found that the 5000 cars were averaging 6280 miles to the set of tires. One Ohio Haynes owner stated that his car had gone more than 21,000 miles on its original tire equipment.

Boston Retail Oakland Store

BOSTON, MASS., April 2—Reuben Bowen has been elected president of the Dunbar, Sanders & Bowen Co., formed here to handle the Oakland at retail as distinct from the Oakland Motor Co. of New England that handled both wholesale and retail. J. J. Meade has been placed in charge of the commercial vehicle department handling Clydesdale trucks.

Important

Beginning on Page 8—

Used Car Price Record

Look it up!

Dealers from Six States at Maxwell Convention

Southwestern Sales Representatives Gather at Dallas to Discuss Modern Sales Methods

DALLAS, April 7—Maxwell dealers from the Southwestern district gathered in Dallas last week for the annual sales managers' meeting. The conference was for one day. There were several addresses and a general discussion by the dealers of their experiences in building up their business. Six States were represented at the meeting. It will hereafter be an annual affair. Several of the officials of the company were here. Among them were: Chas. Gould, sales director; C. E. Stebbins, director of sales; A. E. Richmond, service manager, and G. L. Madison, of Cleveland, representing the financial end of the concern.

At night there was a banquet at the Adolphus Hotel. Zone Superintendent L. A. Smith was master of ceremonies. Col. L. J. Wortham, of the Fort Worth Star-Telegram, was a speaker. Hermann Phillipson, advertising manager for the Dallas Times-Herald, was another. He addressed the dealers on the subject of salesmanship in connection with advertising, and incidentally declared that truth in advertising should be one of the principles of the dealers.

Those who attended the convention were: Robert Rogers, Detroit; E. O. Durfee, Alexandria, La.; W. E. Watson, Colorado; Howe Steele, Houston; H. W. Stinson, Snyder; Hubert Toler, Loraine; W. L. Petty, Brownwood; R. F. Crawley, Marshal; Wood Breazeit, Natchitoches, La.; J. W. Payne, Wellington; George J. Ficks, H. F. Riggs, Dallas; R. C. Lancaster, Waterford; D. D. Sawyer, Dawson; D. B. Garner, Jacksonville; S. W. Ray, Jacksonville; T. F. Abbott, Dallas; W. E. Alexander, Jr., Pete Vernon, Fort Worth; M. A. Conner, Daingerfield; L. D. Nelms, Ardmore, Okla.; T. S. Wosker, Waco; R. A. Nagel, Cuero; W. C. Mortimer, Wynnewood, Okla.; E. L. Kendall, Bob Buford, Dallas; Clarence Griffith, Frederick, Okla.; W. W. Finfrock, Dallas; E. F. Hightown, Henderson; T. R. Crowson, Ladonia; Robert Rowntree, Bartlett; W. G. Smith, Bartlett; Joe T. Dozier, Forney; J. W. Dishman, Collinsville; L. W. Lowe, Corsicana; T. D. Lewis, Fort Worth; A. L. Wiesbebaum, Fort Worth; A. C. Petty, Hico; G. V. Murray, Dallas; W. E. Cabeen, Dallas; R. R. Hurley, Mineral Wells; Walter J. Schroeder, Dallas; J. F. Rutheginds, Robert Hockett, A. J. Hancon, R. F. Cunningham, Clay E. Adams, Kaufman; W. E. Dishman, Collinsville; R. C. Love, Corsicana; H. Lindale, Katyville, Okla.; R. J. Hensley, Paris; R. S. Griggs, McAlester, Okla.; R. W. Connor, Daingerfield; A. C. Hendra, Dallas; J. M. Cassidy, Pittsburgh, Pa.; W. L. Wode, Elgin; H. Hollinsworth, Dallas; Amon Lowrance, Ed. D. Miller, J. F. Stephenson, Dallas; E. H. Boats, Clarksville, Ark.; J. C. Dodd, Enid, Okla.; Drew Ludlow, Shreveport, La.; J. M. Neighbors, Jr., Mansfield; J. C. Allen, Kemp; Peter A. Mayner, Cabolo; C. A. Tower, Henderson; J. K. Thomas, Sherman; W. W. Lankford, Denison; H. E. Wright, J. B. James, Fort Worth; W. F. Anderson, W. M. Anderson, August H. Grobe, Wichita Falls; Pine Haggard, Seymour; J.

M. Dennis, Milburn, Okla.; J. T. Williams, Milburn, Okla.; W. O. Dodd, Colima, Okla.; J. N. Naville, Amarillo; W. H. Wright, Frederick, Okla.; F. F. Holt, Vivian, La.; A. D. Jones, Jonesboro, La.; J. S. Terry, Hobart, Okla.; J. M. Lipscomb and M. F. Bell, Plainview; J. W. Maxwell, Indianapolis; A. B. McKee, Dallas; George D. Musser, Sherman; W. M. Davis, Dallas; G. A. Dorough, Kaufman; D. R. Yarbrough, Chandler; W. E. McKeller, Hico; A. F. Doer, Cabola; G. C. Griffith, Apache, Okla.; R. J. Lacy, Apache, Okla.; A. S. Gilty, Lawton, Okla.; W. H. Henthorn, Colorado; T. Ed. Graham, Dallas; R. O. Moore, Loraine; R. L. King, Sweetwater; S. K. Wroe, Austin; C. C. Sellers, Bridgeport, Okla.; J. J. Sallorka, Okla.; W. R. McKinney, J. W. Carpenter, Detroit, Tex.; C. D. Teeney, William Kirkey, Apache, Okla.; G. D. Wright, Fort Worth; A. L. Schumann, Fort Worth; G. W. Madison, Cleveland, Ohio; C. E. Stebbins, Detroit, Mich.; Charles Gould, Detroit; A. G. Carter, W. G. Burton, H. C. Burk, Jr., Fort Worth; and Herman Phillipson, Dallas.

Rock Island Dealers Organize

MOLINE, ILL., April 7—Thirty garage owners, accessory and tire dealers of Moline, East Moline, Rock Island, Silvis and Watertown have organized the Rock Island County Automobile Association, officers being elected as follows: President L. F. Haemer, East Moline; vice-president, E. O. Noack, Rock Island; secretary, G. C. Hepburn, Moline; treasurer, A. J. Ostlund, Moline; trustees, A. F. Sala, Rock Island; George Turner, East Moline; and Sifford Peterson, Moline. Meetings will be held regularly to discuss matters calculated to benefit the members of the association, bring about co-operation and a spirit of unity, and eliminate price cutting and other evils which reduce profits. It is believed that every dealer will be allied with the new association.

S. A. E. Increasing Membership

DETROIT, April 3—The Society of Automotive Engineers started on April 1 to increase its membership to 1000 in 4 weeks. The work is being directed from the Detroit section headquarters by R. O. Gill, production manager of the Saxon Motor Car Corp., who is chairman of the membership committee. The country has been divided into 14 zones with a chairman for each, and in every city where there is an S. A. E. member a sub-chairman has also been named, who will form a committee for active work. Each member has been requested to secure one new member.

Idaho Licensing by Weight

SEATTLE, April 7—Governor Alexander of Idaho recently signed the new law governing the registering of motor vehicles, and the law became effective March 20. It provides for the licensing of cars by weight. Cars weighing 2000 lb. or less must pay \$15; 2000 to 3000 lb., \$20; 3000 to 4000 lb., \$30; over 4000, \$40. After a car is 5 years old, one-third of the fee is deducted. Dealers' licenses are \$35 for the first car handled, and \$25 for each additional make handled.

Close to 60,000 Cars Registered in Georgia

Original Order of 50,000 License Plates Nearly Exhausted and 10,000 More Ordered

SAVANNAH, GA., April 7—Figures at the office of Secretary of State Phil Cook indicate that Georgia now has close to 60,000 motor cars. At the outset of the present season Secretary Cook ordered 50,000 1917 license numbers, his order being based upon his experience of 1916, when approximately 48,000 license numbers were sold. Already the Secretary of State has sold or has ordered for an aggregate of about 54,000 license numbers for the new year. Fully half of these are yet to be issued. As a result of the unusual demand Secretary Cook has just sent in an order for 10,000 additional tags and numbers which will give him a total of 60,000. If the purchase of automobiles keeps up at the present rate the chances are he will have to place yet an additional small order to finish out the season.

Gear Makers Organize

NEW YORK, March 29—An organization of gear manufacturers was formed at Lakewood, N. J., at a recent meeting. This organization will be known as the American Gear Manufacturers' Assn. Its purposes are to advance and improve the gear industry in a general way by the standardization of gear design, manufacture and application. F. W. Sinram of the Van Dorn & Dutton Co., Cleveland, is president; H. E. Eberhardt of the Newark Gear Cutting Machine Co., Newark, N. J., is vice-president.

Puritan Gets R. C. H. Parts

DETROIT, April 7—The Puritan Machine Co. has purchased the service stock of the R. C. H. Corp. The purchase includes the patterns and records of the company, besides the large stock of repair parts. The acquisition of the R. C. H. stock makes a total of 108 orphan cars for which Puritan is supplying parts.

\$1,000,000 Capital for Saginaw

SAGINAW, April 7—The Saginaw Motor Car Co. has increased its capital from \$100,000 to \$1,000,000, all of which, both old and new, will be in common stock. The company has orders on hand for 800 cars. It now employs 65 men but in the next 30 days expects to increase this number to 150 and within one year to 500.

New Building for Tillotson

TOLEDO, March 31—The Tillotson Carburetor Co. will move on March 1 to a new building which the company has erected. The structure cost \$50,000 and has 60,000 sq. ft. of floor space.

Capital's Dealers Hold a Spring Carnival Week

It Boosts Business and Effects Greater Solidarity of Trade— Frequent Meetings Planned

WASHINGTON, D. C., April 7—With 36 dealers representing 48 gasoline cars, 3 electrics and 3 trucks participating the automobile carnival or open house week of the Automobile Trade Association was brought to a close to-night after a highly successful week. Weather conditions, with the exception of one day, were good and each of the various salesrooms were visited by many prospective buyers. The volume of business transacted during the week was satisfactory to most of the dealers and most of them considered the carnival a success as a business getter.

Each of the dealers taking part in the event had his salesroom attractively decorated with American flags, palms and cut flowers. The committee in charge of the affair had limited the amount to be spent on decorations with the result that there was uniformity in the decorations. The plan of having demonstrating cars on hand to take visitors from salesroom to salesroom enabled visits to all the dealers.

The carnival has had the effect of bringing the dealers in closer touch with each other and it is believed that the differences that have existed in the past have been wiped out.

The association is planning to have frequent meetings where the members can discuss trade affairs. These meetings probably will take the form of luncheons or dinners and with all the members pulling together some of the evils that have crept into the trade will be eliminated. The president, J. M. Stoddard, Cadillac dealer, is one of the most popular men in the trade and he is surrounded by officers who are pillars of the trade. They are S. A. Luttrell, Packard, vice-president; W. C. Long, Studebaker, treasurer, and Charles W. Semmes, Hudson and Dodge, secretary. S. S. Grogan, automobile editor of a local paper, has been appointed assistant secretary and upon him will devolve the work of watching for legislation inimical to owners and dealers as well as other matters of trade interest.

Iowa Wants Better Laws

DES MOINES, April 9—The Iowa Retail Automobile Dealers' Assn. is conducting a legislative campaign. It wants a dimmer law relating to country highways, a correction of abuses regarding the use of dealers' license plates, an enactment placing an automobile thief on the same basis as a horse thief, and a lien law. The lien law has passed the lower house 67 to 18, but has yet to pass the Senate and be signed.

Following the close of the legislature.

a series of meetings is to be held in different sections of the State.

Packard Service Managers Organize

DETROIT, April 7—Ten branch service managers of the Packard Motor Car Co. have formed a technical service board. This board meets monthly and discusses ways and means of bettering Packard service, both on trucks and pleasure cars. One step already taken is the standardization of Packard Service tools, so that any dealer can for a moderate price obtain the tools best adapted to Packard Service. This board was organized by H. W. Drew, the new Packard service manager, formerly with Nordyke and Marmon in the same capacity.

Robinson Sets Dealers Luncheon

DETROIT, April 6—L. J. Robinson, distributor of Chalmers cars in Michigan, served a luncheon yesterday in the showrooms of his store to more than 50 Michigan dealers. The luncheon was attended by several of the officers of the Chalmers Motor Car Co. Robinson officiated and the speakers included: E. C. Morse, vice-president and general manager of the Chalmers company; W. J. Drumpelmann, assistant sales manager, C. H. King, special representative and W. L. Agnew, director of advertising. Morse discussed the labor situation as produced by war conditions and warned the dealers that it is likely that a material shortage of cars will result during 1917. He estimated the shortage to be as high as 23 per cent and stated that while the Chalmers company had the material on hand for 30,000 cars, unless the company was able to secure labor its total production for this year would be 23,000 cars.

Two Weeks' Show in Atlantic City

ATLANTIC CITY, April 7—Atlantic City opened its first annual spring show on Garden Pier March 31. The show will continue until April 14. The show is being visited by people from all parts of the country and has exhibitors from Philadelphia, Atlantic City, New York, and points in New Jersey. There are over 45 exhibitors, 15 of whom are dealers and branches in Philadelphia, nine from Atlantic City, one from New York and one from Glasboro, N. J. A corner of the Pier was set aside for the display of trucks, of which there are five. There are almost 20 accessory exhibits. Garden Pier, ordinarily an attraction in itself for the immense Easter throngs, drew extra numbers of people intent on seeing the show. The Pier is attractively situated and extends out 1200 feet over the ocean. Approximately 26,000 square feet of floor space was reserved for exhibitors and there is plenty of spacing between cars.

Oklahoma Dealers Organize

GUTHRIE, OKLA., April 7—The Logan County Auto Dealers' Association has organized, with H. T. Hansford, president; Roy Fasken, vice-president; Wm. Bickel, secretary; Herman Carlson, treasurer.

Boston Trade May Have an 8000-Car Warehouse

Dealers May Take Stock in Enterprise—Plan Also Includes Chain of Garages

BOSTON, April 7—Boston is to have a big warehouse in which dealers can store cars and it is to be connected with a system of garages throughout eastern Massachusetts which will make it one of the biggest undertakings ever carried out in the motor industry. The plan is being perfected by Henderson & Ross, a real estate firm.

An option has been secured upon three acres of land in Allston near the motor district and adjoining the railroad where a spur track can be run in. A building of eight stories is to be erected and it will be divided into units so that each one will take care of 1000 cars. That means a total of 8000 cars. It will allow for expansion as the trade grows. The railroad track will run between the units and the cars will be unloaded into elevators for the different floors.

The plan calls for the dealers to have their cars shipped at any time and stored. Many of them will be given an opportunity to buy stock in the enterprise so that the cost of storage will be lessened as they receive dividends. In the summer when the space is somewhat empty other merchandise can be stored there, as there is always a demand for warehouse space in a city that fronts on the ocean.

In connection with the warehouse the same interests have begun work on a system of garages to be placed along the principal routes of travel in New England. They will be known as the Standard Garages. The first route will be that between Boston and New York and the second the North Shore section. Already plans have been started for garages at Framingham and Swampscott, and the main one will be at Allston identified with the warehouse. It is proposed to have the warehouse ready by next fall.

Wagner-Hoyt Gets Volta

NEW YORK, April 7—Believing that there is a demand for an exceptionally robust magneto for use on tractors, and possibly on trucks, the Wagner-Hoyt Mfg. Co., New York, have acquired all the manufacturing rights, etc., in connection with the Volta magneto and are now producing a small quantity. Electrically, the Volta is a conventional high-tension magneto, but it is designed so that it is inherently waterproof. To resist the demagnetizing effect of vibration the magnets are double, one set being placed outside another. Ball bearings are very much larger than usual, and even the details of the contact breaker are massive.

Jordan Makes Cars Chic for Smart Spring Trade

Lays Out Assortment of Colors and Will Make But Twenty-five Cars of This Kind

CLEVELAND, April 10—The Jordan is out in spring clothes, just as are women, men and birds. A number of Jordans are to be finished in special colors and upholstery for appeal to the fastidious, and that an element of exclusiveness may be injected, but twenty-five models of this sort will be sold. The buyer may choose his own color combination, but to facilitate the buying of special creations the company has combined certain effects and made these suggestions:

1.—Apache red, four-passenger sport model, with khaki-kool top cover and white wire wheels.

2.—Ocean sand gray, seven-passenger luxury car, with semi-bright leather top cover and with fenders and fillers to match the body.

3.—Italian tan, four-passenger sport model, with mustard-color material for top cover, tan leather flaps on doors, rug of neutral shade and with black wire wheels.

4.—Egyptian bronze, seven-passenger luxury car, with patent-leather top cover and fenders, fillers and door flaps to match.

5.—Apple blossom green, four-passenger sport model with white leather top cover and flaps; louvres brilliantly shot with Chinese blue; fenders and fillers to match body and wire wheels in white.

6.—Chinese blue, seven-passenger luxury car, top cover of harmonizing shade, fenders and fillers to match and red wire wheels.

7.—Venetian green, seven-passenger luxury car, with semi-bright hand-buffed leather upholstery, black leather flaps and white wire wheels.

8.—Venetian green, four-passenger sport model, semi-bright hand-buffed leather upholstery, door flaps, fenders and fillers to match and white wire wheels.

9.—Savage red, four-passenger sport model, with Italian tan top cover; black leather door flaps and white wire wheels.

10.—Submarine gray, four-passenger sport model, egg shell finish, with khaki-kool top cover and orange wire wheels.

Portland Dealers Banquet

PORTLAND, ORE., April 7—One hundred and twenty automobile men were guests of the Dealers' Motor Car Association of Oregon at a banquet and dance given in honor of the automobile salesmen of the various establishments. The "scheduled" part of the program at the banquet included talks by Walter H. Evans, District Attorney; C. C. Chapman on salesmanship. The membership of the organization is increasing and the get-together affairs planned by the officers are resulting in great good to both dealers and employees.

Overland Dealers in Sales Contest

BOSTON, MASS., April 7—A sales contest between the men identified with the Connell & McKone Co. at Boston.

and the Chicago Willys-Overland Co. has just been started to cover the month of April. The salesmen and some of the service men in both organizations subscribed \$10 each for a purse and additional sums of \$100 have been put up by the managers of both agencies. At the end of the month the factory officials will give out the details as to which company sends in the more orders and the losing company will send a check to the winner. Some of the sub-dealers of Connell & McKone want to join in and the wager may run well above \$500 a side before the month ends. Some side wagers are now being proposed to cover weekly sales.

Faw Buys Lennon Protector

NEW YORK, April 9—J. H. Faw, Inc., manufacturers' representative, with offices in this city and Atlanta, has purchased the patents and business of the Lennon Mfg. Co., which makes the Lennon light protector and will continue its manufacture and distribution. The device fits over a lamp bulb and holds the illumination to the road. It is sold in pairs at \$1 per pair.

Enlarging Tri-City Association

DAVENPORT, IA., April 10—An effort is being made to expand the Davenport trade association to include all of Scott County, Iowa. The Davenport association is in turn a unit in an organization with Moline and Rock Island.

E. A. Gilmore Sells His Last Motor Car

BOSTON, April 8—Funeral services for Ernest A. Gilmore, who died at New York last Thursday, were held to-day at the chapel in Newton Cemetery at 3 o'clock. The services were simple, in keeping with Gilmore's ideas of such things. There were delegations present from the Boston Automobile Dealers' Association, the Bay State A. A., and the Massachusetts State A. A. Gilmore had been president of the Bay State A. A. and a director of the Boston Automobile Dealers' Association when he was located here.

He was one of the pioneer dealers in Boston, and he managed the Jeffery branch when the company built the two-cylinder Rambler. Later on he went to New York for the White Co., then returned to Boston to handle the Chalmers with C. E. Whitten as the Whitten-Gilmore Co. When the Chalmers company established a branch Gilmore took the Lewis and the Allen agencies. He gave those up to accept a place in New York with the Mitchell agency, where he was general manager at the time of his death.

Gilmore was a competitor in the first Glidden tour and his Rambler car was the first car to check in at Yonkers, N. Y., on the completion of the run in 1905. He was one of the best known men in the trade in the East. He had been ill with a throat trouble most of the winter.

Texas Now Requires the Registering of Repairs

Cars on Which Work Is Done Must Be Recorded—Designed to Combat Motor Car Thief

AUSTIN, TEX., April 7—Governor James F. Ferguson has signed the bill which was passed at the recent regular session of the legislature, requiring the registration of all repairs and other work done upon automobiles, and it is now a law. The text of the measure follows:

Section 1. Every repairshop of whatsoever kind, or garage, within this State, engaged in the repairing, or rebuilding of automobiles of every description, or any repairshop, within this State, engaged in electrical work in connection with automobiles of every description, shall keep a well-bound book in which they shall register, in an intelligent manner, each and every material repair or change in or on any automobile or automobiles of every description.

Sec. 2. Said register shall contain a complete and accurate description of each and every car upon which there is performed any work of any character, or there is installed any new parts or accessories of any character. Said register shall particularly show the make of the automobile, number of cylinders, model, passenger capacity and motor number. Also the name of the owner of the automobile, his county and State register number, and his place of residence.

Sec. 3. Said register shall be kept in a secure place and shall be open at all times to the inspection of any person or persons desiring to examine the same.

Sec. 4. The failure of any garage, repairshop or electrical shop engaged in electrical work in connection with automobiles of every description, to keep a proper and intelligent register as required in this act, or the failure to allow an inspection of said register to any person or persons desiring to do so, shall be guilty of a misdemeanor when a complaint has been duly made before the proper officers authorized under the laws to receive complaints for misdemeanors, and for the first offense the punishment shall be by a fine of not less than \$25, nor more than \$100, and for every succeeding offense thereafter, if committed by the same party, the punishment shall be a fine of not less than \$50 nor more than \$200, or by confinement in the county jail for a period of not more than six months, or by both such a fine and imprisonment.

Sec. 5. In view of the fact that there is now no adequate law upon the statute books requiring the keeping of a register by repairshops and garages, creates an emergency and an imperative public necessity requiring the constitutional rule which requires bills to be read on three several days be suspended, and it is hereby suspended, and that this act shall take effect and be in force from and after its passage, and it is so enacted.

Closed Sundays and Holidays

SAN ANTONIO, April 7—Car and accessory dealers of San Antonio have announced that beginning the first Sunday in May their stores and shops will close every Sunday and important holiday. Seventy-two concerns joined in making the announcement.

Specifications
of the
Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	B. A. P.	Ignition	Carburetor	Starter	Clutch	Gears	Wheelbase	Tires	Rims	2-Runner	5-Runner	7-Runner	Coupe	Sedan	Limousine	Detachable Top
ABBOTT	6-31x41 25.3 Remy		Stmbe	Remy	DP	3	122	32x4	SS		1195	1250	1195	1495	1820		
ALLEN	4-31x41 22.5 Wels		Stmbe	Wels	C	3	112	32x4	SS		1895	895		1175	1195		1195
AMERICAN SIX	6-31x41 21.6 G & D		Zenith	G & D	D	3	122	32x4	SS			1285					
AMS-STERLING	4-31x41 15.6 Bosch		Stmbe	Bosch	DP	3	110	30x4	SS								
ANDERSON	6-31x41 25.4 Wels		Own	Wels	DP	3	120	32x4	SS		1275	1250	1250				
APPERSON	6-31x41 25.4 Remy		Rafid	Bijur	DP	3	122	34x4	SS		1850	1790	1850				
AUBURN	8-31x41 31.2 Remy		Johnson	Bijur	DP	3	130	35x4	SS		2000		2000				
B-17	6-31x41 23.4 Remy		Rafid	Wels	DP	3	120	34x4	SS		1145	1145	1145				1320
B-39	6-31x41 23.4 Wels		Rafid	Wels	DP	3	131	35x4	SS			1135	1335				1785
B-44	12-21x41 29.6 Delec		Stmbe	Delec	D	6	142	34x4	QD		3750	3750	4000	4550	4950	5250	
AUSTIN	4-31x41 22.5 Dixie		Zenith	G & D	DP	4	123	32x4	QD		2200	2350	12275			3800	3900
BIDDLE	6-31x41 25.3 Remy		Stmbe	G & D	DP	3	118	32x4	QD			1350					
BOUR-DAVIS	4-31x41 25.3 Bosch		Zenith	U. S. L. C	3	125	34x4	SS			16500				7500	7700	
BREWSTER	4-31x41 16.3 Conn		Mayer	Spilidorf	C	3	105	30x4	QD		685	685					810
BRISCOE	8-31x41 28.8 Remy		Zenith	Alpco	C	3	114	32x4	QD		1045	1045					
B-24	4-31x41 18.9 Remy		Mayer	Alpco	C	3	114	32x4	QD		1845	845					
B-38	4-31x41 18.2 Delec		Marvel	Delec	C	3	106	31x4	C		640	675					
B-44-47	6-31x41 25.3 Delec		Marvel	Delec	C	3	115	34x4	SS		1040	1070		1440	1835		
CADILLAC	6-31x41 27.3 Delec		Marvel	Delec	DD	3	124	34x4	SS			1385					
55	8-31x41 31.2 Delec		Own	Delec	D	3	132	37x5	SS		12240		2240	2940		2760	2835
CASE	4-31x41 21.0 Conn		Rafid	A-Lite	C	3	120	34x4	QD		11190		1190				
CHALMERS	6-31x41 25.4 Remy		Stmbe	Wels	DP	3	115	32x4	SS		1250	1250	1350	1625	1850	2550	
6-30	6-31x41 29.4 Bosch		Rafid	G & D	D	3	123	34x4	SS		11395		1395	1995	2095	2695	
CHANDLER	4-31x41 21.7 Conn		Zenith	A-Lite	C	3	102	30x4	C		535	550					625
CHEVROLET	4-31x41 21.7 Conn		Zenith	A-Lite	C	3	103	32x4	SS		800	800					
F-5-F2	8-31x41 30.45 Remy		Zenith	A-Lite	C	3	120	34x4	SS		1355	1355	1335		2495		
COLE	8-31x41 30.2 Delec		Stmbe	Delec	C	3	127	34x4	SS		1795		1795	2295	2495		
CROW-ELKHART	4-31x41 19.6 Conn		Carter	Dyneto	D	3	114	31x4	SS		1895	845					985
DANIELS	8-31x41 35.3 Wels		Zenith	Wels	D	3	127	34x4	QDR		12800	2500	2800	3800	4000	4900	
DAVIS	6-31x41 25.3 Delec		Stmbe	Delec	C	3	119	34x4			1295	1295	1295	1695	1795		1995
H & I	6-31x41 29.4 Delec		Stmbe	Delec	C	3	124	34x4				1595	1595				
DETROIT	6-31x41 25.3 Conn		Rafid	A-Lite	D	3	119	32x4	SS		11220	1250		1325			1550
DISPATCH	4-31x41 22.5 Bosch		Rafid	U. S. L. F	4	120	36x4	QD			1135		1210	1400			
DIXIE FLYER	4-31x41 16.9 Conn		Carter	Dyneto	C	3	112	32x4	SS			845			1275		
DOBLE	2-cyl. 5x4 double-setting steam engine, 600-hp.											2500					
DODGE BROTHERS	4-31x41 24		Stewart	N.E.	D	3	114	32x4	SS		885	835		1265	1265		1000
DORRIS	6-4 x 5 38.4 Bosch		Stmbe	Wels	D	8	128	36x4	SS				2175	2550	2675		
I-B-6	4-31x41 16.9 Conn		Carter	Wels	C	3	105	30x4	QDC		1695	695			1045		815
DORRIS	4-31x41 16.9 Conn		Carter	Wels	C	3	105	30x4	QDC								

Model	Motor	B. A. P.	Ignition	Carburetor	Starter	Clutch	Gears	Wheelbase	Tires	Rims	2-Runner	5-Runner	7-Runner	Coupe	Sedan	Limousine	Detachable Top
LOZIER	4-41x41 28.9 Bosch		Stewart	G & D	D	4	120	35x4	SS				1995				
84	6-31x41 36.0 Elman		Rafid	G & D	D	3	132	36x4	SS				2775				
LUVERNE	6-31x41 33.7 Bosch		Schebler	Bosch	DD	132	35x4	SS					1650				
MADISON	6-31x41 23.4 Remy		Rafid	Remy	DD	3	115	34x4	SS		11285	1285	1375				
4	6-31x41 23.4 Remy		Rafid	Remy	DD	3	115	34x4	SS								
MAIBOHM	4-31x41 15.6 A.Kent		Zenith	Disco	DD	3	105	36x4	SS		905						
A	8-31x41 28.8 A.Kent		R & M	DP	3	125	32x4				11500	1650	1650				
MAJESTIC	8-31x41 33.8 A.Kent		R & M	DP	3	135	35x5				13000	3000	3000				
M	8-31x41 23.4 Wels		Stmbe	Wels	DD	3	120	32x4	SS		11350		1350				
MARION HANDLEY	6-40		Stmbe	Wels	DD	3	125	35x4	SS		11650		1650				
6-60	6-31x41 29.4 Wels		Stmbe	Wels	DD	3	125	35x4	SS								
MARMON	6-31x41 33.7 Bosch		Stmbe	Bosch	C	3	136	32x4	QD		12100	3050	3100		4250	4550	5500
34	4-31x41 21 A.Kent		K-D	Simma	C	3	103	30x3	C		620	635		845	985		
MAXWELL	6-41x41 48.6 Bosch		Stmbe	Wels	DP	3	136	35x5	QD		3750	3800	3800				
MCFARLAN	4-31x41 22.5 Bosch		Zenith	U.S.L.	DD	4	132	34x4	QDC		13500	3500					
MERCER	4-31x41 22.5 Bosch		Zenith	U.S.L.	DD	4	115	32x4	QDC		3400	Raceabout	3250				
22-73	4-31x41 24 Dixie		A.W.T.	G & D	F	108	32x3	C			600	600					
METZ	6-31x41 25.4 Conn		Rafid	Spilidorf	C	3	120	32x4	SS		11150	1150		1995	2175	2785	3002
25	4-31x41 22.5 Conn		Schebler	A-Lite	C	3	118	34x4	SS		11495	1495					
MOLINE-KNIGHT	4-31x41 22.5 Conn		Schebler	A-Lite	C	3	122	35x4	SS		11840		1640	2400	2440		
G	4-31x41 22.5 Haines		Schebler	Haines	D	3	108	32x3	SS		995	895					
MONITOR	6-31x41 26.4 Haines		Stmbe	Haines	D	3	115	33x4	SS		1005	1005			1395		
N-0	4-31x41 14.4 Conn		Zenith	A-Lite	DD	3	98	30x3	DC		545				945		
MONROE	4-31x41 16.9 Conn		Zenith	A-Lite	DD	3	115	32x4	DC			985					
M-3	6-31x41 25.3 Delec		Rafid	Delec	DD	3	118	32x4	SS		11295	1295					
MOON	6-31x41 29.4 Delec		Rafid	Delec	DD	3	125	35x4	SS		11800		1690	1690	2350		1450
6-43	8-31x41 33.8 Dixie		Zenith	Wels	DP	3	128	34x4			2500		2500				Chassis 2000
MURRAY	6-31x41 29.4 Delec		Rafid	Wels	C	3	128	34x4	QDR		11850	1850	1850	2500	2450		
10-TONAL	6-31x41 39.7 Delec		Rafid	Wels	C	3	128	34x4	QDR		12350	12350	2250	2900	2850		
NATIONAL	4-31x41 15.8 Bosch		Zenith	U.S.L.	D	3	104	32x4	SS						2200		
24	6-31x41 19.0 Delec		Marvel	Delec	C	3	112	32x4	SS		1275	875					985
34	6-31x41 39.3 Delec		Stmbe	Delec	C	3	127	34x4	SS				1585				10250
OLDSMOBILE	6-31x41 26.4 Delec		Johnson	Delec	C	3	120	32x4	SS		1295	1295	1367	1775	1850	2575	1775
45	6-31x41 15.9 Delec		Johnson	Delec	C	3	112	32x4	SS		11045	1045					
OVERLAND	4-41x41 27.3 Conn		Titon	A-Lite	C	3	112	31x4	SS		1925	845			1550		
83B4	6-31x41 27.3 Conn		Titon	A-Lite	C	3	116	32x4	SS		1010	1025			1585		
83B6	6-31x41 27.3 Conn		Titon	A-Lite	C	3	125	35x4	SS				1425				
88-6	6-31x41 29.4 Conn		Titon	A-Lite	C	3	104	31x4	C		680	695					
90	4-31x41 18.2 Conn		Titon	A-Lite	C	3	106										
OWEN	6-31x41 29.4 Bosch		Zenith	O-M	OM	125	34x4	SS			2390		2660	2660	3660	4360	
M-25	6-31x41 33.7 Bosch		Zenith	O-M	OM	136	34x5	SS			2560	2660				5000	
O-36	6-31x41 33.7 Bosch		Zenith	O-M	OM	136	34x5	SS									
PACKARD	18-3 x 5 45 3 Bijur		Own	Bijur	DD	3	136	36x5	QDC		3050	2500	2500		4150	4600	
3-35	18-3 x 5 45 3 Bijur		Own	Bijur	DD	3	136	36x5	QDC		3050	2500	2500		4150	4600	
9-35	18-3 x 5 45 3 Bijur		Own	Bijur	DD	3	136	36x5	QDC		3050	2500	2500		4150	4600	

PAIGE	6-3125	21.4 Remy	Radif	G & D	D	3	117	32x4	SS	1176	1176	1776	
6-38	6-3125	20.4 Remy	Radif	G & D	D	3	124	35x4	SS	1375	1375	1776	
6-46	6-3125	20.4 Remy	Radif	G & D	D	3	137	35x4	SS	1406	1406	2700	
6-51	6-3125	20.4 Remy	Radif	G & D	D	3	137	35x4	SS	1406	1406	2700	
PARTIN-PALMER	6-3125	15.6 Conn	Schebler	A-C	DD	3	96	30x3	C	645	645	645	
20	6-3125	15.6 Conn	Schebler	A-C	DD	3	110	32x4	C	645	645	645	
23	6-3125	15.6 Conn	Schebler	A-C	DD	3	110	32x4	C	645	645	645	
PATERSON	6-3125	21.4 DeLoe	Stumb	DeLoe	C	3	117	32x4	C	11196	11196	1196	
6-45	6-3125	21.4 DeLoe	Stumb	DeLoe	C	3	117	32x4	C	11196	11196	1196	
PATHFINDER	6-3125	21.4 DeLoe	Stumb	DeLoe	C	3	117	32x4	C	11196	11196	1196	
3-A, B, C	12-3125	29.7 DeLoe	Stumb	DeLoe	DD	3	126	36x5	SS	2360	2360	2360	
PERILLER	6-3125	21.4 DeLoe	Stumb	DeLoe	C	3	117	32x4	C	11196	11196	1196	
50-2	6-3125	21.4 DeLoe	Stumb	DeLoe	C	3	117	32x4	C	11196	11196	1196	
PIERCE-ARROW	6-3125	21.4 DeLoe	Stumb	DeLoe	C	3	117	32x4	C	11196	11196	1196	
38-C-4	6-4	38.4 Bosch	Own	Wetsh	C	4	124	36x4	QDC	4900	4900	4900	
40-B-4	6-4	38.4 Bosch	Own	Wetsh	C	4	124	36x4	QDC	4900	4900	4900	
40-B-4	6-4	38.4 Bosch	Own	Wetsh	C	4	124	36x4	QDC	4900	4900	4900	
60-A-4	6-5	47.60 Bosch	Own	Wetsh	C	4	147	38x5	QDC	16400	16400	7800	
PILOT	6-3125	21.4 DeLoe	Times	DeLoe	DP	3	119	32x4	SS	11200	11200	1200	
6-45	6-3125	21.4 DeLoe	Times	DeLoe	DP	3	119	32x4	SS	11200	11200	1200	
PREMIER	6-3125	21.4 DeLoe	Times	DeLoe	DP	3	119	32x4	SS	11200	11200	1200	
6-45	6-3125	21.4 DeLoe	Times	DeLoe	DP	3	119	32x4	SS	11200	11200	1200	
PRINCESS	6-3125	21.4 DeLoe	Times	DeLoe	DP	3	119	32x4	SS	11200	11200	1200	
4-36	4-3124	22.5 Splitdorf	Schebler	Daseo	D	3	108	32x4	SS	775	775	775	
PULLMAN	4-3124	22.5 Splitdorf	Schebler	Daseo	D	3	108	32x4	SS	775	775	775	
42-32	4-3124	22.5 Splitdorf	Schebler	Daseo	D	3	108	32x4	SS	775	775	775	
REGAL	4-3124	22.5 Splitdorf	Schebler	Daseo	D	3	108	32x4	SS	775	775	775	
4-32	4-3124	22.5 Splitdorf	Schebler	Daseo	D	3	108	32x4	SS	775	775	775	
F	8-3	24	28.8	Johnston	Dyneto	C	3	115	32x4	SS	1300	1300	1300
REPUBLIC	6-4125	43.3 DeLoe	Radif	DeLoe	C	4	133	36x4	SS	12000	12000	2000	
E	6-4125	43.3 DeLoe	Radif	DeLoe	C	4	133	36x4	SS	12000	12000	2000	
REO	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
6-3125	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
R	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
ROAMER	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
R.A.	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
ROSS	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
C	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
SAXON	4-2124	12.1 A.Kent	Robb	Wagner	DD	3	96	30x3	DC	496	496	496	
B-5-R	6-2124	19.8 Remy	Stumb	Wagner	DD	3	112	32x4	SS	865	865	865	
8-4	6-2124	19.8 Remy	Stumb	Wagner	DD	3	112	32x4	SS	865	865	865	
SCRIPPS-BOOTH	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
G	4-3124	22.0 Remy	Zenith	Remy	C	3	110	30x4	SS	1255	1255	1460	
D	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
SIMPLEX	6-4125	45.9 Esmann	Newcomb	Boech	D	4	143	37x5	QDC	Chassis	6000	6000	
6	6-4125	45.9 Esmann	Newcomb	Boech	D	4	143	37x5	QDC	Chassis	6000	6000	
SINGER	6-4	24	28.4 Bosch	Radif	Wetsh	DD	4	136	35x5	QD	3500	3500	
17	6-4	24	28.4 Bosch	Radif	Wetsh	DD	4	136	35x5	QD	3500	3500	
STANDARD	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
8	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
STANLEY	2-4	26	.....	.....	.....	.....	130	34x4	SS	2200	2200	2300
STEARNS	4-3124	22.5 Splitdorf	Schebler	Daseo	DD	3	119	34x4	QDC	11495	11495	1495	
SKLA	8-3125	33.8 Remy	Radif	Wetsh	DD	3	123	35x4	QDC	12250	12250	2000	
SK8	8-3125	33.8 Remy	Radif	Wetsh	DD	3	123	35x4	QDC	12250	12250	2000	
STEPHENS	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
60-45	6-3124	25.3 DeLoe	Stumb	DeLoe	DD	3	115	32x4	SS	11235	11235	1225	
STUDEBAKER	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
SP-4-10	4-3125	24.0 Remy	Schebler	Wagner	C	3	112	34x4	SS	1385	1385	1665	
ED-4-10	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
STUTZ	6-4125	36.1 Bosch	Stumb	Remy	C	3	130	34x4	SS	2375	2350	2550	
R	6-4125	36.1 Bosch	Stumb	Remy	C	3	130	34x4	SS	2375	2350	2550	
SUN	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
17	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
VELIE	6-3124	25.3 Remy	Stumb	Remy	DP	3	115	32x4	SS	1165	1165	1665	
28	6-3124	25.3 Remy	Stumb	Remy	DP	3	115	32x4	SS	1165	1165	1665	
27	6-3124	25.3 Remy	Stumb	Remy	DP	3	115	32x4	SS	1165	1165	1665	
WESTCOTT	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
SL-17	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
WHITE	14-V	4-4124	28.9 Bosch	Own	L.N.	P	4	137	37x5	QDC	14000	5550	5800
WILLIS-KNIGHT	6-4124	27.2 Conn	Times	A-Lite	C	3	121	34x4	SS	1385	1385	1660	
88-4	8-3124	30.1 Remy	Zenith	A-Lite	C	3	125	34x4	SS	1385	1385	1660	
WILLIS	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
58-6	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
WINTON	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
33	6-3125	21.4 Remy	Radif	Remy	DD	3	126	34x4	SS	1320	1320	1760	
43	6-4124	43.6 Bosch	Radif	Bijur	DD	4	138	37x5	QD	2685	2685	3000	
46	6-4124	43.6 Bosch	Radif	Bijur	DD	4	138	37x5	QD	2685	2685	3000	

ABBREVIATIONS: "A-C" Allis-Chalmers, "L.N." Leese-Neville, "Titan" Tillotson, "Atz" Atzler, "Rebb" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE: "37x5x5" means that the rear tires are 37x5x5, and the front are smaller.

Seagrave is the First Eight-cylinder Truck

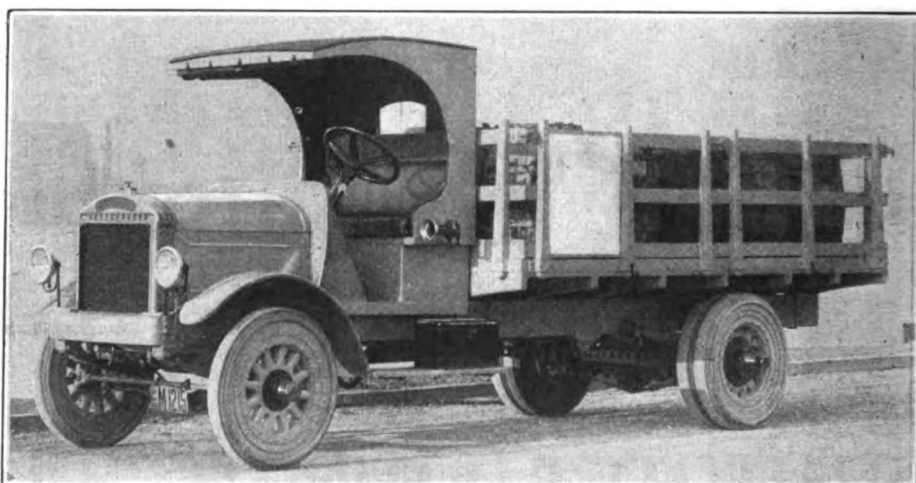
EIGHT cylinders are used in a motor truck for the first time in the Seagrave, built by W. E. Seagrave & Co., Walkerville, Ont., a concern which for a number of years has been prominent in the fire apparatus field. The Seagrave truck is made in 3½-ton capacity, at present, though 2- and 5-ton sizes will also be built. Sewell cushion wheels are optional equipment with the solid wood type.

SEAGRAVE SPECIFICATIONS

Capacity lbs. 7000
Wheelbase, in. 156
Tires, front 36 x 5
Tires, rear 36 x 5d
Bore, in. 3¼
Stroke, in. 5
N. A. C. C. hp. 33.84
Gear ratio in high gear 12-1
Final drive Worm

The engine is a Herschell-Spillman V-type eight, incorporated with the clutch and gearset to form a unit powerplant, supported directly from the main frame on three points. The L-head cylinders are cast in two blocks of four each. Centrifugal pump cooling water circulation is provided, through a cast-tank finned-tube radiator. This radiator is unusually wide because of the width of hood demanded by the eight-cylinder engine. The fan is gear driven.

The carburetor is between the cylinder blocks, fed by gravity from a tank beneath the seat. A centrifugal governor is applied and is mounted separately above the carburetor.



Here is the Seagrave truck which has a Herschell-Spillman eight-cylinder engine

Battery ignition is used, supplied from the Westinghouse electric starting and lighting system, which is standard equipment. This is of the two-unit type.

A dry-disk clutch and three-speed selective gearset take the drive from the motor, from whence it is conducted by a two-part shaft to the rear axle. This shaft has three universals and a central bearing to reduce the free length of shafting and thereby prevent whipping.

The axle is a Timken worm-driven one of the floating type, torque being taken

by the springs and propulsion by radius rods. Brakes are of the usual Duplex type, so arranged with their linkages that the controls may be reversed so that if the foot brake becomes worn, the other brake may be connected with the foot control and the hand control connected with the worn foot brake.

The frame is of rolled channel steel with a substantial bumper at the front. Left steer and central levers are used, the wheel being 22 in. in diameter, and acting on the axle, fore and aft.

Coming—THE SHOW CALENDAR—Events

Calumet, Mich.	Upper Peninsular Show Assn.	April 11-14
Milwaukee, Wis.	First Annual Used Car, Milwaukee Automobile Dealers, Inc., Auditorium; Bart J. Ruddle, Mgr.	Apr. 20-26
Spokane, Wash.	Interstate Fair	Sept. 2-3
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 15-28
Washington, D. C.	Carnival and Open House, Week, Automobile Trade Assn. of Washington.	Jan. 11-15

General and Racing

Los Angeles, Cal.	Los Angeles to Salt Lake City, Utah.	April
Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 15
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.	Championship	June 9
Cincinnati, O.	Race	June 23
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4

Omaha, Neb.	Championship	July 4
Tacoma, Wash.	Championship	July 4
Visalia, Cal.	Road Race	July 4
Spokane	Track Race, R. A. Hiller, Mgr.	July 6
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 6
Des Moines, Ia.	Championship	July 14
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Intercity Reliability	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Elgin, Ill.	Road Race	Aug. 15
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb	Sept. 8
Providence, R. I.	Championship	Sept. 15
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 23
New York	Speedway Races	Sept. 29
New York, N. Y.	Championship	Sept. 29
Uniontown, Pa.	Speedway Races	Sept. 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.	Race	Oct. 13
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13
New York, N. Y.	Race	Oct. 27

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 3

New York, April 18, 1917

Ten cents a copy
Two dollars a year

Champions by the Carload for Chanslor & Lyon Co.

WORLD DISTRIBUTORS OF MOTOR CAR ACCESSORIES



We have just received a whole freight car, packed solid with over 100,000 Champion Spark Plugs representing in round numbers between \$40,000 and \$50,000.

This speaks volumes for Champion popularity—a popularity due to the unusual dependability, the sturdy endurance, the unfailing efficiency of these plugs.



Champion

Motorists and dealers alike prefer Champions. Four out of five of all gasoline motors are factory equipped with them. Give your customers Champions

when you replace their plugs. You will be sure of satisfied patrons.

"CHAMPION" is on the porcelain of each plug—not merely on the box.

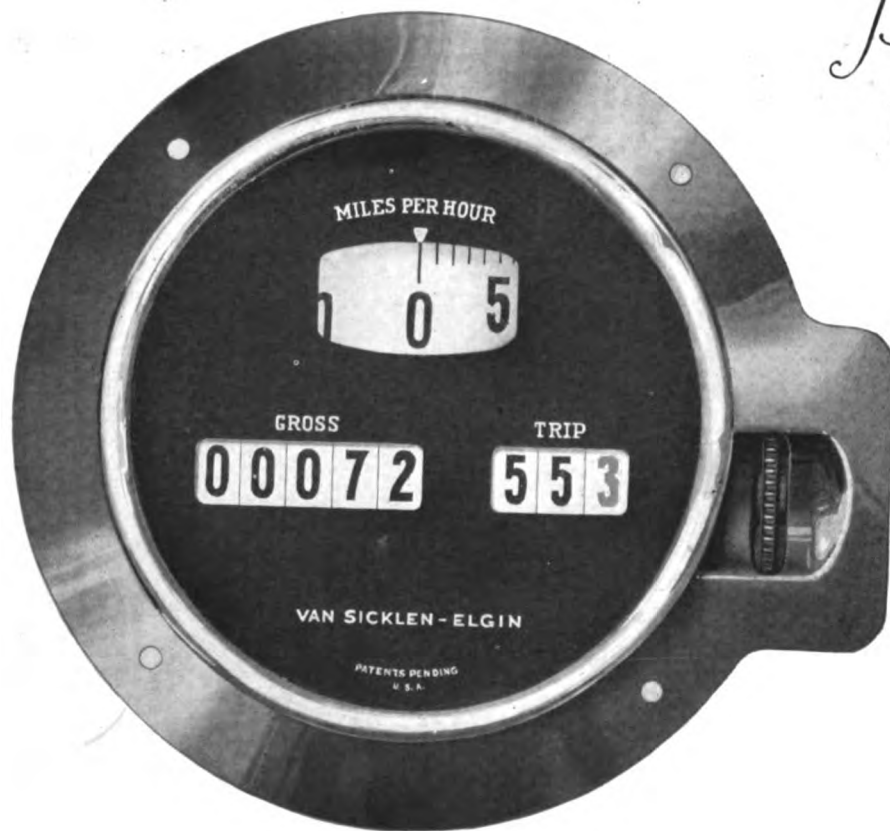
The above is an exact reproduction of a clipping taken from the front page of "The Pioneer," a house organ published by Chanslor and Lyon Company of San Francisco—one of the largest motor car accessory jobbers in the world.

A freight car loaded with spark plugs is a record in itself, but when the entire shipment of over 100,000 plugs is needed by one concern, it is pretty good proof of the demand for the "Champion" product.

Dealers:—Your jobber carries Champions.
Be sure you stock up with a good supply.

Champion Spark Plug Company, Toledo, Ohio

*Built Like an
Elgin Watch
by Elgin
Watchmakers*



Van Sicklen

ELGIN

SPEEDMETERS

*Now Standard Equipment on
21 of America's Cars of Quality*

*The Van Sicklen Company
Elgin Illinois*

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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When Time Counts

The thoroughness of our organization together with the size and facilities of our plant assure prompt delivery of SAE Standard Cap Screws, SAE Semi-Finished Nuts, SAE Castellated Nuts, as well as



Automatic Screw Machine Products

When time is an important factor with you it would be well to remember this fact.

Remember! When placing an order with the Corbin Screw Corporation you are placing it with an organization qualified both by experience and capacity to fill orders in the shortest possible time with products of the highest quality.

We shall be glad to submit quotations and advice on delivery upon receipt of blue prints and specifications.

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The Corbin Screw Corporation

The American Hardware Corporation, Successor
 NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
 Makers of Corbin-Brown Speedometers



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For nearly 20 years Bergougnan (formerly Gaulois) Tires have been made and used in France. For many years they have been favored by American motorists.

They are made with extreme care, and are really extraordinary tires, put together slowly and skillfully, designed for durability and comfort, in combination with non-skid qualities.

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under the name
of
GAULOIS
Tires.

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Bergougnan Tires

Even a cursory examination by one who is familiar with tire make-up will disclose the finished character of a Bergougnan.

In every single point of its make-up unusual skill and care are at once apparent.

Manufactured by
Etablissements
Bergougnan, of
Clermont-Ferrand,
France,
Established
1889.

Every dealer has customers who want just this sort of tire.

Our guarantee is 5000 miles and we live up to it. We protect our profits by making an excellent tire, not by holding up on our guarantee.

We are prepared to give exclusive territory to responsible dealers, with a critical clientele to satisfy.

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49 West 64th Street, NEW YORK

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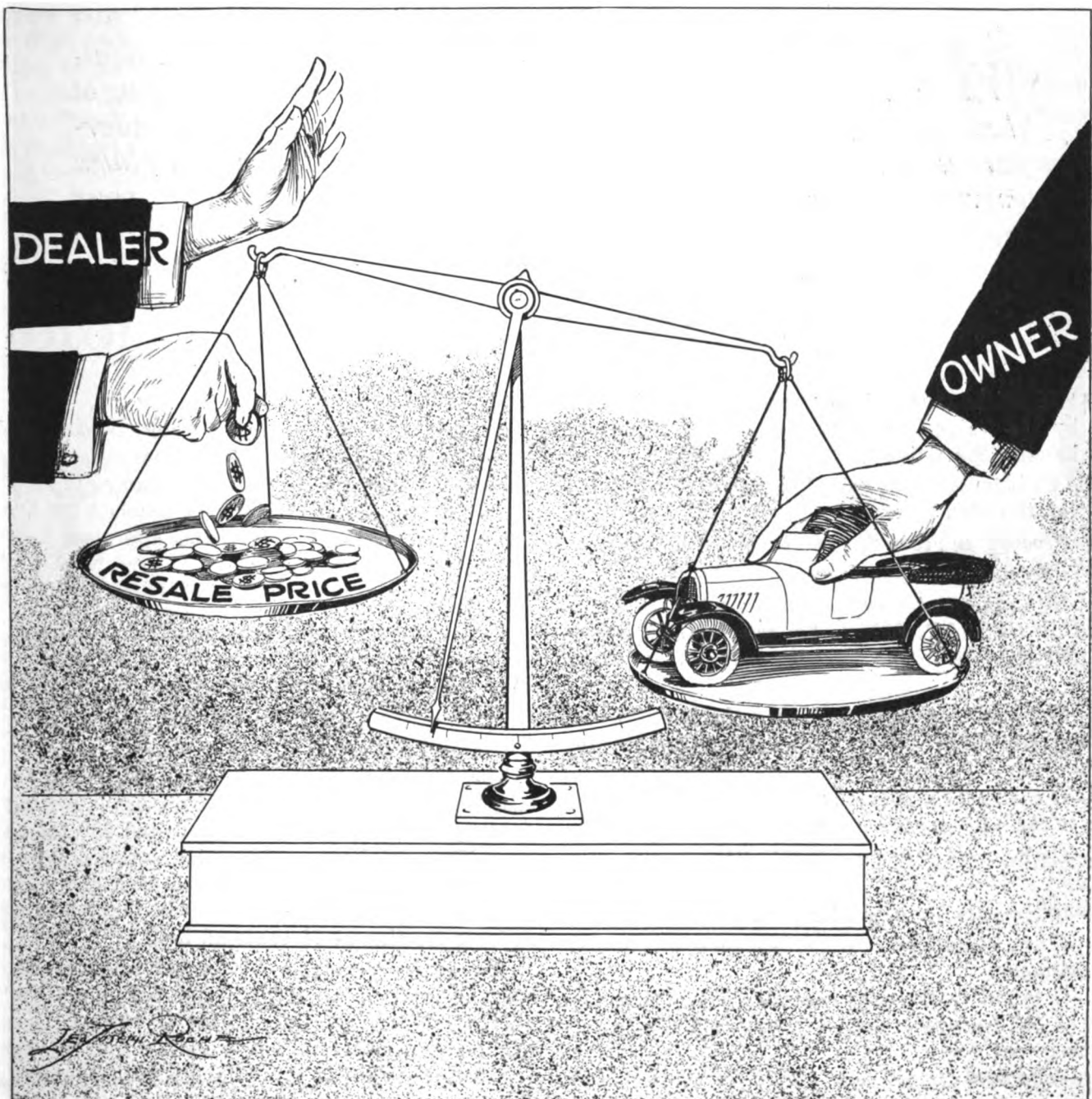
MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, April 18, 1917

No. 3



Owner, who wants a big price: "...and she's almost as good as new!"
Dealer: "Maybe she is, but take your hand off and let's see what she weighs!"

Simple as A B C

The Used Car Problem

It Needn't Be a Problem at All if You Take
'Em in Trade at Less Than the Resale Price

MOTOR World said it was going to tell how successful dealers have solved the used car problem. Perhaps you thought these stories would reveal something mysterious and wonderful. Well, they haven't and they won't, because it is mostly plain, every-day, business common sense and consists of having your trade allowances

Based Upon the Resale Price

THIS is the story of how used cars are handled by the Paige-Detroit Co. of New York, which handles the Paige in the metropolis.

The problem has been solved by this dealer. Here's the way the plan works:

- 1—*Prospect appears and wants to trade.*
- 2—*Used car manager is summoned.*
- 3—*He examines the car, estimates what can be secured on RESALE, deducts his estimate for repairing and submits to the sales manager an appraisal slip.*
- 4—*The figure on this slip is then the sole and only trading figure the new car sales department recognizes.*
- 5—*If the new car sale is made the old car is turned over to the used car manager.*
- 6—*He inspects it and sends it to the shop for tuning up.*
- 7—*It then goes to a painter for repainting.*
- 8—*When completed it is turned back to the used car manager.*
- 9—*It is put in the used car salesroom, which is a part of the basement curtained off from the rest of the basement floor.*
- 10—*The used car manager sells it for the best price he can get for it, sometimes a little more or a little less than he paid for it, but he is supposed to run his department NOT AT A LOSS. He may break even or make a profit, but he MUST NOT LOSE.*

Used Car Guarantee

All used cars are guaranteed not to have broken parts and a 30-day guarantee against defective parts is given on used Paiges. This guarantee is safe, because the used car manager has watched for broken parts when making his original appraisal and has allowed for their repair.

Overhauling

Thorough overhauls, properly styled rebuilding, are not given. The cars are tuned up and put in good running order and are truthfully represented to the prospect. Each car, however, is repainted.

Setting the Value

For cars approximately a year old about 35 per cent is deducted from the original price in setting the trading value. From this is deducted \$30 for painting. The examination of the car reveals certain necessary mechanical work, and the used car manager estimates how many hours this will take and further deducts for this at 75 cents an hour.

The general condition of the car is, of course, always a determining factor. One car might be "deducted" 35 per cent and another 40 per cent, according to the condition. Also, there is a greater demand for certain makes of car. Buicks and Chandlers and Paiges, the used car manager states, are somewhat ahead in demand right now. This may be due to advertising or something else. He does not try to explain it.

Small, economical cars are far more desirable than big, heavy gasoline eaters. All these things must be known by the manager. He must be in touch with his business.

Salesmanship

Salesmanship enters considerably into the handling of the used cars after they are ready for sale. The used car manager, Joseph M. Dryer, says it is different from selling new cars. Women often look at the used cars but seldom buy or have the final word. They realize that greater knowledge of cars should be employed here and they generally leave final decision to their husbands.

Buyers

Buyers vary. There are those who believe they know it all and others who frankly ask the used car manager to pick them out a small, economical car. This he does. He is glad to be a counselor. The buyers who "know it all" are permitted to believe they know it all and they make their own selections. Making buyers satisfied is, however, one of the rules of the shop.

The used car salesroom is in the front of the base-

ment. It is separated from the remainder of the basement by a canvas partition, which hangs from the ceiling and rolls up from the bottom on a wooden roller when necessary. This salesroom is reached by a winding stair from the new car salesroom.

The Manager

Dryer was for years a carriage man in New York City. Since 1907 he has been engaged in the sale of cars, mostly used cars. His new car sales have been few. This has given him a perspective and knowledge of the used car business that is valuable.

Getting the Price

As was stated previously in this story, the cars are not always sold at the allowance figure. It is often necessary to sacrifice \$25 or \$50. If a car proves a sticker it is marked down and cleaned out. Quick turnover of the used car stock is one of the essentials. If a car seems worth more than the allowance, after it has been fixed up, it is sold for the best obtainable price. This causes the department to run on an average between profit and loss, which gives an even break or better.

Motor World Used Car Price Record

Use It! Page 44 This Week!

THE only solution of the used car problem that you will ever work out or that has ever been worked out by any one is BASED UPON THE RESALE PRICE.

If you don't keep the resale price in mind when making your allowances you can't trade successfully. You will be unduly influenced by your desire to make a sale and the car owner will work you up the scale of price for his old car.

If you want to know what used cars are bringing study the MOTOR WORLD Used Car Price Record. It appeared

for the first time last week. It gives the figures at which cars were sold during the preceding week in all parts of the United States.

These figures are compiled by MOTOR WORLD'S Field Staff. In every city where figures are given a trained MOTOR WORLD man is gathering these figures each week.

This is only one of the services MOTOR WORLD is rendering in its effort to help make the trade a better business field for those in it.

Keep your eye on the resale price and you can't go wrong.

What Alfred Reeves Thinks of the Plan

EDITOR Motor World: I have read with more than ordinary interest the March 28 issue of MOTOR WORLD and I am convinced that a paper such as yours, with its influence among dealers, could not undertake a better work than to investigate and furnish information on the used car situation. Dealers throughout the country should take full advantage of your Used Car Price Record and should co-operate so as to make it of the greatest possible value.

The trouble with most dealers is that they fail to sell their new car,

and waste most of the time in haggling over the price of some old car. They seem to have a great fear that some other dealers might get that car and, of course, with half a dozen dealers bidding, a false value is certain to result.

There is a proper valuation for any used car that is in the market and while every buyer looks to make the best bargain possible, no fair-minded man wants to see a dealer do business at a loss.

The worth of any article is based on what it will sell for and not

what you pay for it. Dealers deceive themselves in allowing higher prices than can be obtained for the car in the regular market.

When a man comes in to buy a car he is half sold or he would not be there.

If there were an appraiser or some authority that could give a proper valuation on cars, there would be less difficulty about making sales, less tendency to do prolonged shopping by the buyer and a better condition of trade generally.

EDITOR MOTOR WORLD—I notice that you are taking quite a little interest in garage and automobile trade associations, and, as I am a member of a committee on the State Organizations of the National Association of Automobile Accessory Jobbers, I would be very glad if you would give me an outline of the best talking points, as I want to get started on this work.

—C. E. JACKSON, Jackson Motor Supply Co., Pittsburgh, Pa.

Why Dealers and Garagemen Should Organize

I NTEREST in trade associations is increasing everywhere. Associations large and small are being formed. States, sections and small cities and villages are getting together in the spirit of co-operation. This movement has made more progress during the past year than ever before.

MOTOR WORLD receives many requests for information and assistance in this work. In answer to the above request from C. E. Jackson we have enumerated certain points and they are herewith presented for the benefit of any who may care to use them.

WHY SHOULD WE ORGANIZE?

W HEN the subject of organization is broached among any collection of business men one of the first things they are prone to ask is:

WHY SHOULD WE ORGANIZE?

Perhaps in some trades there is no need for organization, but in the motor car trade there is a great need for it. The need is perhaps best discussed in terms of the benefits that may come from organization.

And in discussing the benefits of organization let it be asserted here that these benefits have been proven in numerous cities, large and small, and in States and sections of States. It is something that **HAS BEEN DONE** and that can be done in other places.

Sell Yourself on Co-operation

The first essential is that the dealers and garagemen **SELL THEMSELVES ON THE IDEA OF CO-OPERATION**. No association can succeed if each member believes all the others are robbers and cut-throats. Each man must determine that he is going to **GET ACQUAINTED** with his competitors and find out—which is the truth—that they are not the thieves and high-binders he thought they were. And all the time they

have been thinking the same thing about him.

This co-operative spirit must be developed in the cities, villages and sections. The dealers and garagemen must meet often. They must sit at luncheons together. They must get close to one another. They must learn to like one another.

If they can't do that there isn't any need of reading any further, for all that follows then becomes impossible. But if they will become human and recognize the fact that "your competitor, not your customer, is your best friend," there is practically nothing that can't be done.

A strong enough organization could demand that the constitution of the United States be written in Chinese—and get away with it.

Here follow some of the benefits that have and can come from organization in the motor car trade:

BENEFITS OF ORGANIZATION

Used Cars

Let us take up what is one of the most vital problems of to-day—Used Cars. The great trouble with used cars is that they are traded in at too high a

value. Not by any rule, but by a little simple co-operation this evil can be remedied, in part, at least. A discussion of the subject in meetings and the acquirement of a little common sense by members will almost eliminate the evil. If the price is kept down to a point where resale is not difficult the used car evil ceases to exist.

Legislation

A Lien Law is desired by all States, and it is possible only through the co-operation of the whole trade of a State. This law would protect the dealer and garageman, who, as the laws stand now, is too often trimmed out of the price of repairs because he has little or no protection under the law unless he goes to the trouble of expensive litigation.

In many localities there are numerous things that should be remedied by legislation by the local council of aldermen. In one city of the East the streets are so bad that cars get hard service and the sale of used cars is made difficult. An active dealers' association could start a movement, enlist the co-operation of other civic organizations and get the streets paved.

In some States the licensing law works a hardship on the dealer and his customers. An efficient organization could have such a law changed.

And always there are fool legislators who have no higher object in life than to take a whack at the motor car industry. An organization is necessary if only to bat these gentlemen on the coco and squelch their idiotic bills. One never can tell when a fool law will appear in a legislature—and when it appears it is then too late to form an organization to oppose it.

Standardized Charges

Throughout most of the United States dealers and garagemen are charging all kinds of prices for service. The labor-

hour charges vary; the price of towing varies; livery hire varies; collecting the freight is not always the practice, and there are countless other figures, such as storage, gasoline profit and other



things, that are not the same in any two places in the same town. An investigation of this matter by an association has in several places resulted in a standard of charges in which there is a profit, and this profit is being secured by those who are CO-OPERATING.

The matter of charges is State-wide on some things. In the summer, transient charges should be standard, and of such a standard as to AFFORD A PROFIT.

Association Emblems

If it became known that an association stood for fair charges and honest dealing and that a member who was unfair would be reprimanded by headquarters, tourists would seek out garages which bore the association emblem and would buy storage and supplies of member garages, merely because the emblem meant something. But for this to be successful the emblem must be MADE TO MEAN SOMETHING.

Credit Exchange

In localities and also through whole sections and States an interchange of credit ratings on customers is invaluable. The dead beat has caused thousands of dollars of loss to this trade. Fakers have cashed bad checks and run up bills in city after city and have not been stopped, merely because the dealers and garagemen had no way of CO-OPERATING. They were all working against one another. And in cities dead beats



have hung up dealer after dealer before they finally ran out of credit. A central exchange which, promptly notified, sent out such data would save the trade thousands of dollars.

Mail Order Houses

Mail order houses are dreaded by dealers and garagemen, many of whom sit in terror of these business-stealers. But if an association rises in strength and lets it be known that it does not care to handle goods that are sold through mail order houses these institutions can be combated.

Leagues

Every now and then some so-called league bobs up, charges car owners \$10

and offers to sell the car owner goods at a discount. An investigation by an association will generally show these things up as fakes and stop them. But the individual dealer or garageman, operating alone, can do practically nothing. Together the trade can do everything.

Price Cutters

And there are concerns that price-cut standard goods throughout whole territories. An association that is active and strong can generally end this business without much trouble.

Curbstone Dealers

Everybody knows the curbstone dealer who buys one car at a discount, gets a contract of some sort and operates with his hat as the roof and the curbstone as his office. No manufacturer cares to see his wares in ill repute, and this evil has



been successfully combated in several places.

Lemon Cars

Frequently new cars appear on the market. Some are good and others are unsound. Dealers always want to know what's what before they consider a contract with one of these companies and get a lot of money tied up in deposits. The best way to get accurate data on such a proposition is for the association headquarters to investigate and report to the whole membership. It is a matter easily handled.

Good Roads

Where the roads go the cars sell. State associations have a big work in getting good roads, and it is a work that is not difficult if the whole body hangs together and plugs hard.

Price Maintenance

It is possible to eliminate much of the price-cutting that exists, but it cannot be done by an association rule. Intelligent co-operation and a few little talk-it-overs can work wonders, provided the members are SOLD ON CO-OPERATION.

Getting the Profits

Accounting and business system is one of the things on which an association can do good work. On this subject Motor World will be pleased to submit suggestions. In some sections work of this kind has made prosperous business men out of poverty-stricken repairmen-mechanics. This subject could be discussed over many pages.

Better Business

The work of an association almost automatically makes Better Businessmen

out of its members. No man can be a good association member and fail to grow in a business way. There are many instances of this.

Scheming Promoters

This trade seems to be the favorite working ground for promoters of many kinds. One breed promotes "associations." He beats the tom-tom, makes a loud hurrah about what he is going to do, collects about \$10 per, practically runs everything himself and is some agitator as long as the money lasts. Tradersmen who consider forming an association may work to advantage with a promoter only so long as they keep control of affairs—and the money—in their own hands.

If a group of dealers can finance a paid secretary it is a good thing, and the secretary is entitled to as much salary as he can make the job worth. But no promoter should be permitted to dash into a city or a territory, stampede the trade into an association and clean up all the money he can while the cleaning is good.

Jobber Co-operation

In forming associations the jobbers are generally anxious to assist and can do a great deal of good. They have given excellent support in several localities. Also, an association brings the dealer, garageman and jobber closer together and makes the path of business easier.

Union with Distributors

When forming an association, dealers should not get the idea that the big car distributor is the enemy of the small dealer. They should work in harmony and should belong to the same organization. If there are points of difference between the distributor and the dealer there is no better place to settle these things than in an association meeting of all the parties concerned.

Business Practices

Association meetings may be made the clearing house of business ideas. Let there be discussed, for instance, such questions as employment, limits of demonstrating, charges for service, saving



money on telephone charges, and countless other matters pertaining to the daily operation of business.

Freight Savings

It is possible to effect great savings in freight by having an expert check all past bills and see whether parts and accessories have been shipped in their proper classifications. This expert may be employed by the association, depending on the size of the organization, or a special arrangement may be made with

an expert who is already in business. There are many such men in important cities.

Motor Car Shows

A motor car show is a fine thing in every community large enough to hold one—and even very small towns can stage a show to good advantage. These should be put on by an association of the dealers, and the association should be in existence the year around, not merely during the show period. Where the territory is served by a big city the distributors may aid by loaning show properties and giving advice. One big city association even sends its manager-secretary out to the small towns to help manage the shows.

Business Promotion

In some sections the trade has successfully united to promote business during a certain period, such as winter, when business normally slows down. This practice may be extended without limit.

Business Education

Associations have worked great benefits to members by establishing lecture courses on business, salesmanship and mechanical matters. This may be accomplished in a great many ways, depending on conditions.

It Can Be Done IF—

All the things that have been enumerated can be done IF—

And that IF is the making or the breaking of an association.



If an association has

- 1—A mission, a job to do,
- 2—Money,
- 2—Men,

it can do anything. If lacking in any one of the three it will not succeed. The mission is already here. There are hundreds of things that ought to be done to make this trade better.

It is not difficult to get the money. The per capita contribution necessary for active work is comparatively small.

Men the Big Need

The BIG NEED is men. And by men is meant YOU, all the YOUs in the industry. If YOU join the association, pay your money and WORK, and if all the YOUs do the same thing the association will be a wonderful success. But if all the YOUs join the association, pay their money and then sit back and wait for the world to be turned upside down nothing will be done.

It takes MEN, men who will WORK. This WORK does not mean that each member must be out with a suitcase traveling the territory and toiling like a traveling man. It means much less. It means that the members must

- 1—Go to meetings.
- 2—Answer association letters.

- 3—Do things the association asks members to do.
- 4—Boost for the association.
- 5—Get new members whenever and wherever possible.
- 6—And be a LIVE member.

Live members get to meetings on time. There is seldom a REAL excuse for not being there on time. If the meeting is at 8 o'clock and it takes 15 minutes to get there, the logical method is to start at 7.45. Very simple, isn't it? Yet so many don't start until 8.15 for an 8 o'clock meeting. That kills associations.

Punctuality Essential

At some State conventions members and delegates have been known to straggle in the afternoon of the first day or the morning of the second day instead of getting there on time when the convention was due to open. That's pretty poor business.

And each association should pick its livest man to run the meetings. A poor meeting-runner can—and does—kill a meeting.

And the business to be done should be laid out beforehand so things will run smoothly. There should be lots of business and not much speeching and orating.

With the foregoing principles borne firmly in mind there is every reason why the trade in every village, every county, every city, every section and every State should have a big, strong, thriving association that can make its demands when necessary and GET WHAT IT WANTS —WHEN IT WANTS IT.

Getting a Flying Start For Summer Business

L J. ROBINSON, Chalmers distributor in Michigan, took a flying start on the summer business campaign on April 5. He held a sales convention of his Michigan dealers, and did things. The convention was characteristically Robinson, in originality.

For perhaps the first time, the salesroom of a dealer was used as a banquet hall. It was a council of war on the battlefield.

All Chalmers dealers were invited—or better, incited to attend. Over 50 did come. Promptly at 12.30 the show cars were cleared out from the showroom. The front windows were covered with bunting, and the tables were placed. Dress rehearsals of the shift had been held, and in less than 5 minutes the salesroom was changed into a modern restaurant.

After the feed came the conference. W. J. Drumpleman, assistant sales manager of the Chalmers factory, was the first speaker.

W. L. Agnew, factory director of advertising, was the next speaker. He said the successful dealer was the live dealer, and that the live dealer was one that did things differently.

E. C. Morse, vice-president of the Chalmers Motor Car Co., spoke next.



Robinson transformed his salesroom into a banquet hall and back into a salesroom almost in the twinkling of an eye

Morse brought out the necessity for co-operation between the manufacturer and the dealer.

L. J. Robinson, president of the Michi-

gan Co., then gave the "Haymaker" talk. In other words, he clinched every statement that had been made, and charged the dealers to act upon the advice.

The Big Summer Merchandising Number of Motor World

The first ever published in the motor car trade

Make a dollar and a quarter instead of a dollar!

GET MORE PROFITS!

HOW?

Read this big issue's stories on:

- 1—How to sell
- 2—How to increase summer business
- 3—How to get the motorist's patronage
- 4—How to get ALL OF YOUR SHARE

SUMMER will bring you a certain amount of business if you do nothing but sit and wait for the rush of trade. But a small amount of effort will bring you in MORE profits, and real intensive effort will bring you a LOT OF PROFITS.

Maybe one slight alteration in your method of operation will bring you a dozen extra customers. Maybe each of them will leave a profit of \$2. Then, this idea has netted you \$24.

Perhaps an ad or a circular letter will bring you ten customers. Maybe each will leave a profit of \$3. Then, your idea has brought you in \$30.

If a road sign sends you 100 transients during the season and if each transient leaves a profit of \$1 the idea has earned you \$100—and the sign costs almost nothing.

Ideas of this kind—money-getters—will fill this Summer Merchandising Number.

Watch for it!

Study it!

When it arrives have the members of your organization read it. Or have a meeting or series of meetings and read certain sections of it to them. Get them all filled with the idea of Summer Merchandising.

Have them discuss the subject. Work out additional plans. Get all set and full of spizz and go through the summer a winner.

This Big Number will contain ideas that can earn thousands of dollars for dealers, garagemen, repairmen and supplymen.

Don't let any of these dollars get away from you.

Uncle Sam Tells Kind of Trucks He Wants

Government War Office Specifications Cover a Thoroughly Commercial Product Devoid of All "Fussy Detail"

THE long-expected War Office specifications for 1½ and for 3-ton military motor trucks were announced April 12. They are the product of the military authorities, assisted by the Society of Automotive Engineers and its Standards Committee organization. Two well known truck engineers, A. L. Riker, of the Locomobile Co. of America, and H. D. Church, of the Packard Motor Car Co., have attended numerous meetings in Washington consulting with the military men.

The resulting specification is without question a good one. Putting the matter in a nutshell, the army knew what it wanted and realized that it was seeking an ideal at present unobtainable. The engineers knew what it was possible to make. Between them they have evolved an eminently practical specification giving the manufacturer sufficient freedom for individuality in design while very clearly defining all the main essentials. The following are regarded as the most vitally important factors in the construction of a military truck:

1. The lowest gear ratio must be not less than 40 to 1. It must be much lower than is usual or commonly desirable on a truck.
2. A large engine of 314 cu. in. for the 1½-ton and 414 cu. in. for the 3-ton.
3. Four-speed transmission direct drive on high gear.
4. The ground clearance not less than 10 in. under the axles and all parts thereof, such as the steering knuckles, with a much higher clearance at the center between the axles. Here 18 in. is desired so that the center cannot touch if both front and rear axles are in holes.
5. Demountable tires only will be accepted, all of 36 in. diameter, and of specified widths.
6. A special gasoline tank is necessary.
7. The electric lighting system is elaborate and defined in detail. It includes a searchlight.
8. The engine must have three-point suspension.
9. Some form of locking differential must be provided.
10. Only the best quality alloy steel may be used for the springs.
11. The tread varies from 58½ in. to 61½ in., according to the size of tire. This must be adhered to and specified in detail.
12. Cooling water must be pump-circu-

lated; the radiator must be of the fin and tube type, while the minimum amount of radiating surface is defined in terms of the size of the engine. This means a very much larger radiator than is demanded by commercial practice, and is to care for continued running in sand or on mountain grades.

These points are the essentials and it is made clear that departures from them will not be permitted. In most other respects, however, the specifications are quite elastic enough. For example, the form of final drive may be chain, worm, internal gear or double reduction gear; the only requisites are the clearance of 9¼ in. and that all parts must be fully inclosed and lubricated, thus cutting out exposed chains or gearing.

Wheelbase Between 124 and 150 In.

Similarly the wheelbase is not defined exactly, but the limitations are space for a 10-ft. body and a turning circle of 55 ft. Wheelbase, it is stated, should be not less than 124 nor more than 150 in.

A requirement which is of vital importance, though it is not listed in the specifications as such, is the load capacity. Nominally on a 1½-ton truck it is stated that the pay load should be estimated at 4000 lb. to allow for the rough usage likely. The body allowance is 1050 lb. for the standard army body, while 3 men and truck equipment total 725 lb. This makes a total load on the chassis of 4775 lb., or 1000 more if the pay load is taken to be 4000 lb. instead of 3000. Thus it would, perhaps, have been more fair to have called it a 2-ton truck.

The chassis weight is limited to 6000 lb., so the whole vehicle when loaded would have a maximum weight of 10,775 lb. For two-wheel drive trucks it is further desired that of the weight of the pay load not less than 80 per cent nor more than 95 per cent be on the rear axle.

One of the points about which the hottest argument has raged is that of governing. The trucks sent to Mexico mostly had to have the governors removed because with them the engine could not be accelerated enough on low gear to pull out of the sand holes. Without the governor, however, the speed on high gear was destructive.

In the original specifications, drafted last year, 14 m.p.h. was the limit set; now it is raised to 15 m.p.h. with the

proviso that the engine speed must at the governed speed be such that the requisite power on low gear is still available. This is still further made evident by the clauses which define the minimum tractive effort at the rear wheels which will be accepted on both high and low gears. Practically, it might be said, the torque curve characteristic of the engine is held within fairly fine limits by the specifications taken as a whole.

Herein the specifications introduce a rather novel phrase, that of the "Tractive Factor." This factor is the result of dividing the tractive effort at the contact of tire and road by the total weight of the loaded vehicle. It must be not less than .0775 on high gear, nor less than .338 on high gear.

In the general specifications for the engine there are two outstanding points besides the size. These are that only poppet valves are allowable, and that the lubrication must be pressure with an oil pump delivering 30-lb. pressure as a minimum at 800 r.p.m. The arrangement of valves is not limited. They may be set in L, T or overhead fashion, but whichever kind of cylinder is used they must be completely inclosed.

Mexican experience is seen in the demand that both main and auxiliary air intakes to the carbureter, and also the crankcase breather, be fitted with dust extractors. These must not require water, must be effective, must be easily cleaned and yet must not require very frequent cleaning.

The details of the bearings, the steel to be used for different shafts, etc., are particularized rather minutely, but in such a way as not to limit design very much. One detail noticed is that laminated shims must be used and not the old-fashioned type.

For pistons iron only is acceptable, and the nature of this iron, together with that for the cylinder casting, is defined. The piston rings must be S. A. E. standard; in fact, almost every one of the immense list of S. A. E. standards that are applicable seem to have been adopted. All the steel specifications, the details of heat treatment and many other like subjects are dealt with by referring to the S. A. E. standard.

Apparently the army expects to get pretty good gasoline, for the limitations placed upon the ability of the carbureter are less than those found in commerce. Gasoline with a starting point of distil-

lation 122 deg. Fahr., a 90 per cent point of 350 deg. and an end point of 400 deg. must be utilizable, say the specifications, but much of the gas to-day is much heavier than this, with end points of 450 or higher and a 90 per cent point around 400.

The gasoline tank must hold 30 gal. and a partition must be used dividing the bottom half of the tank into two, so that at least 6 gal. is retained on either side of the partition. A three-way cock allows fuel to come from either side, but whichever is in use the reserve will still remain at 6 gal.

Either gravity or pressure feed is permitted, the limitation being that the fuel must feed freely when the truck is climbing a grade of 25 per cent or worse and with a minimum amount of gas in the tank. Practically this would seem equivalent to demanding a pressure feed or something of a similar nature.

There must be dual ignition—magneto and battery—with but one distributor in the magneto, and, of course, one set of spark plugs will be accepted. A generator is called for, and also provision must be made for mounting a starting motor and the flywheel must have the gear ring ready for the starter, but a motor is not to be fitted as standard.

For the magneto a standard coupling and mounting with a strap for holding the machine in place must be used, and a drawing is issued with the specification showing dimensioned details of this. The purpose is, of course, to make the magnetos interchange readily from truck to truck. It is specified that the drive for the magneto be such and the couplings so arranged that such interchange is facilitated.

For wiring the single system is to be used throughout, except that the dash-lamp and taillight are to be in series. There is to be a 10½-in. searchlight mounted within the driver's reach, adjustable to any angle and supplied with a 21-cp. tungsten bulb. In addition, combination oil and electric sidelamps and a trouble lamp are required.

For clutch a dry disk pattern with one or more disks is specified and unit powerplants will not be accepted. The four-speed transmission must be mounted separately and the interconnection so arranged that the clutch can be removed completely without disturbing engine or transmission case. It is further stated that there must be two universal joints in the clutch coupling, and these must not be fabric or leather disks. Gear shift for the four speeds must be in accordance with the S. A. E. standards, as must the other details of the control, but nothing is said as to whether the steering wheel be right or left. The S. A. E. standard provides for brake and gear levers on the driver's right, irrespective of the wheel position.

Brakes have a good many paragraphs devoted to them. The fact is that it is almost impossible to make truck brakes large enough to give as good service as those on passenger cars, so great stress is laid on facile adjustments which must not need special tools.

The emergency brakes must be on the road wheel drums, but the service brake may be either on the wheels or the transmission. There is a somewhat severe clause asking that the brakes be powerful enough to slip the wheels or to bring the truck to rest within 50 ft. when running on macadam at 15 m.p.h., this applying to either brake and not to the two together. There is nothing said as to the length of grade down which the brakes must hold without artificial cooling, a matter that was much argued at former meetings when discussing the old specifications.

An interesting point is the selection of tire equipment, because this is made after much experience and with an eye to the longest service without changes. The 1½-ton truck with two-wheel drive is to have 36 x 4 single solid, demountable tires on the front wheels and single solid demountable 7 in. wide on the rear wheels. Four-wheel drive trucks are to have 36 x 6 in front and rear, but again single tires and not duals. In the 3-ton specification, which is but a short appendix to the 1½-ton, specifying the differences, the tires called for are 5 in single front and 36 x 5 in dual rear. For the attachment of the demountable tires a standard drawing in accordance with S. A. E. practice will be issued by the War Department.

It will be seen that for both sizes of truck there is only one tire diameter, 36 in., and only four different sections, 4, 5, 6 and 7 in. covering both two and four-wheel drives, making stock keeping very simple.

As a whole the specifications are very free from fussy detail. They provide a truck which is entirely commercial except in a very few particulars, and those are such that the alteration would be simple. Take the large radiator for example. This would not be good for conventional service, but it is easy to de-

sign the truck to take either the military radiator or a smaller one. So with other parts, that which is uncommercial can be provided for but not supplied to the commercial customer.

Following some such procedure as this would permit a truck maker to change over from his standard to his military type in days instead of months. Meanwhile the specifications are drawn so widely that twenty trucks could be built to fill them and yet not be by any means the same truck. Maximums and minimums are used at many places, giving plenty of room in between. The government and the S. A. E. are to be heartily congratulated on the successful accomplishment of a very fine job.

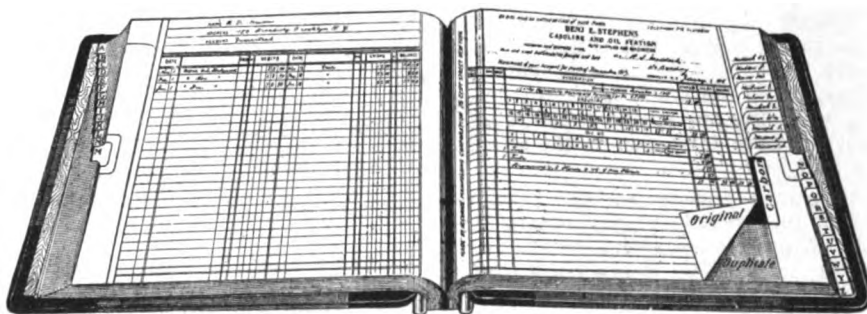
Refuses Foreign Tractor Order

COLUMBUS, April 14—The McIntyre Mfg. Co. has refused to consider an order from an exporting house for 1500 Farmer Boy tractors because of the accumulation of orders on its books. These were intended for shipments to Russia, Siberia and South America. The McIntyre company has a standing order for the shipment of 25 tractors to London each week, but has not been able to keep up to that schedule. The new factory in West Goodale Street is nearing completion and the installation of new machinery will take place within a week. Then the output will be greatly increased.

Will Manufacture Tractors

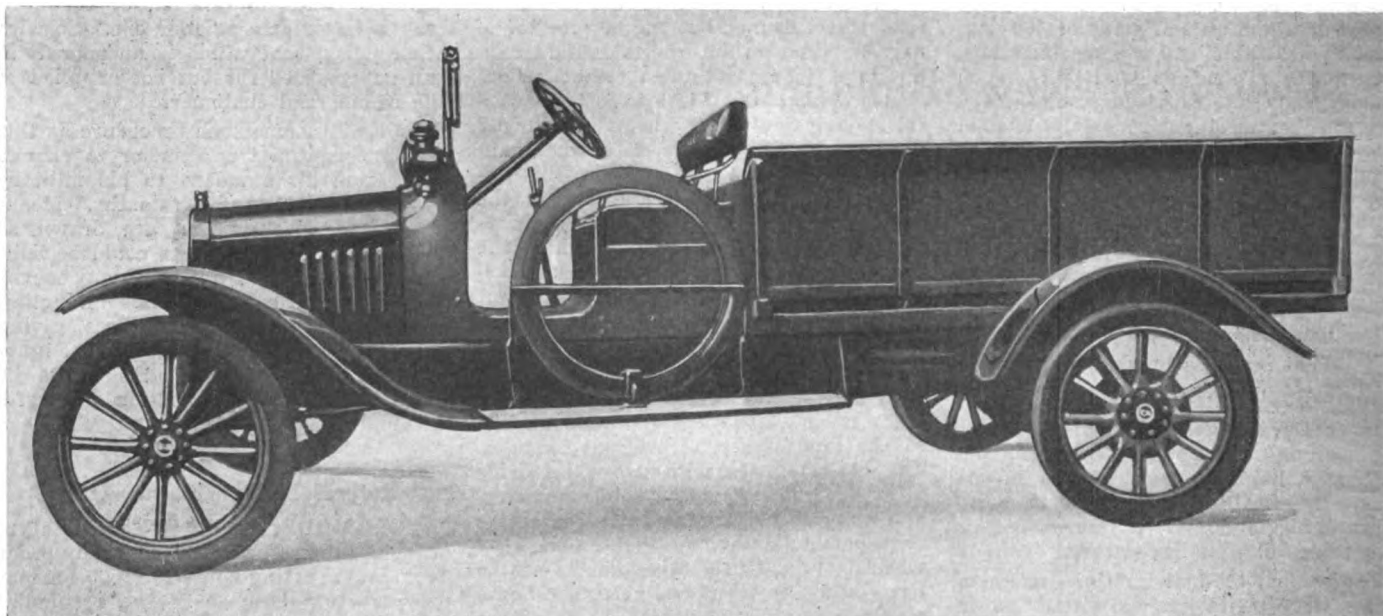
DETROIT, April 13—Clifford V. Herbert, son of Victor Herbert, the composer, will manufacture tractors and expects to have his first tractor complete within the next ten days and believes he will be turning out about 80 a month by July. Herbert has been gaining practical experience by working in the Ford Motor Co. plant.

Equipping the Dealer's Office



The Accurate Self-Indexing Ledger is designed to increase accuracy and minimize time spent in clerical work. Using ordinary bookkeeping methods there are four steps, as compared to one with this system. The four steps are: entering orders on pads or in order books, copying the orders in detail into the day book, posting the day book entries into the ledger, copying the ledger entries on to the weekly or monthly statement or bill. The Accurate Self-Indexing Ledger and

Statement System reduces these to one. All entries are made in duplicate, the original being sent to the customer at the end of the month and the carbon copy is retained as a record. There is a separate sheet for each customer's account and the pages are alphabetically indexed to facilitate finding any particular account. Prices, \$21.88 and \$24.13 complete.—Accurate System and Manifold Co., 1377 Woolworth Bldg., New York.



First photograph of the new Ford light delivery truck which it is expected will be ready for the market early in September

Ford Truck Ready In September

*Light Delivery Vehicle To Run On Kerosene
And Will Have Electric Lamps and Worm Drive*

DETROIT, April 13—(Exclusive to MOTOR WORLD.)—The Ford truck, which has been a matter of the greatest interest to the automobile industry for the past year, is soon to make its appearance. A number of experimental cars are running in Detroit, and as soon as a few of the last details are cleared up and the Ford factory has caught up to the demand for its passenger cars, the truck will be out. As the Ford company is over 100,000 cars behind on passenger car work, this will probably be in September.

The experimental body fitted to the present truck is a panel side job. A photograph of the truck is shown herewith, this being one of the experimental cars which have been seen on the streets of Detroit.

Selling at a price which will be close to \$500, this vehicle is put within the reach of practically every small merchant in the country. It is a truck which is adaptable to such a wide variety of uses that to attempt to list them would be next to impossible. The baker, truck gardener, butcher, and all the other tradesmen whose great problem is frequent and prompt deliveries will find in this truck something which the industry has been awaiting for a long time with intense interest.

Will Run on Kerosene

Experiments are being carried on at the present time to determine the possibility of operating this truck on kero-

Ford Truck Specifications

Engine	Ford
No. Cylinders	4
Bore	3 3/4
Stroke	4
How Cast	Block
Shape Cylinders	L-head
S. A. E. Rating	22.5
Gearset	Planetary
Final Drive	Worm
Gear Ratio	7 to 1

sene. These will probably be a success when it is remembered that, as MOTOR WORLD told some months ago, Holley carbureters are being shipped to Great Britain for installation on the Ford products in Europe. With a truck of this size operating on a fuel costing from 9 to 15 cents per gallon and probably running a distance of 25 miles to the gallon, the fuel cost will be relatively very small.

The experimental cars are mounted on pneumatic tires in front and solid in the rear, and this will probably be the case with the finished product.

The power plant is similar to that used on the passenger car. It is a four-cylinder block unit, 3 3/4 x 4 in., with L-head cylinders. This gives a rating of 22.5 hp. by the S. A. E. formula. It is possible that two or three alterations will be made in the castings for the Ford engine at about the same time the truck gets into production. These will probably be related to the cylinder-head casting, permitting better water circulation in the head and better cooling around the spark plugs. Cooling is by thermosyphon. The trucks will be governed at a speed of about 18 m.p.h., although this is subject to variation, as some of the experimental trucks which are at present running about the streets of Detroit are not equipped with governors.

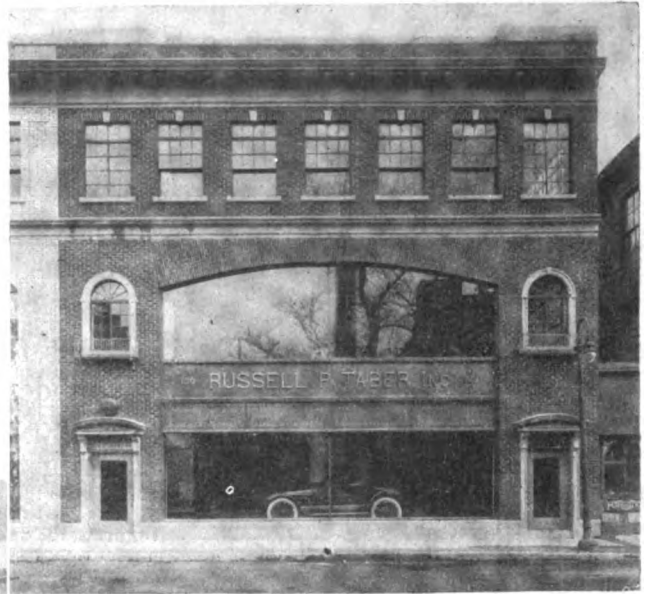
Worm Drive

The transmission gearset is the same planetary unit used on the passenger car, the drive being taken from this through a propeller shaft to a worm drive rear axle, in which the worm is mounted over the gear. The gear reduction at the worm is approximately 7 to 1, being about twice the ratio used in the passenger car. The truck is particularly noticeable for its pressed metal parts and forgings. The wheels are artillery type, and the gasoline tank is carried beneath the driver's seat.

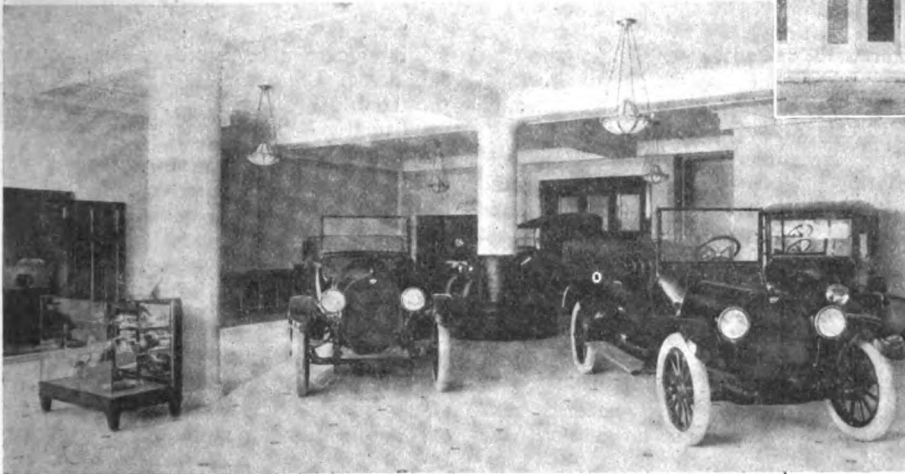
Electric lighting will be used on the truck, and in all probability combination oil and electric lamps will be supplied as regular equipment, as shown by the accompanying photograph.

Two Fine New Buildings in Hartford, Conn.

THE new sales and service buildings of Russell P. Taber, Inc., and the Universal Auto Co., Hartford, Conn., 128-136 Allyn Street, are attractive and practical. Each concern has a three-story-and-basement fireproof concrete structure. That occupied by the Taber organization is faced with tapestry brick and limestone trimmings, and that of the Universal company with cream brick with limestone trimmings.



Above—An unusually attractive building houses Russell P. Taber, Inc., Hartford, Conn., Reo dealer. There is a duplicate building to the left, occupied by the Universal Auto Co.



Left—Showroom of Russell P. Taber, Inc. Note pillar seat and accessory showcase

Below—Showroom of Universal Auto Co., Franklin and Scripps-Booth dealer

Lower Left Hand—Neat and inviting accessory store operated by the Universal Auto Co.

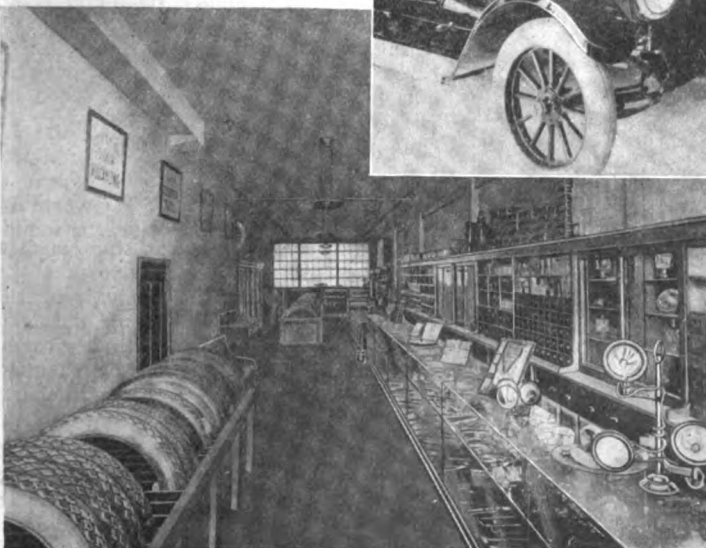
In so far as exterior appearances are concerned both buildings follow similar design.

The Taber Building comprises 34,000 sq. ft. of floor space, that of the Universal Auto Co., 24,000 sq. ft. Basements are given up to public car storage, used car departments, and heat-



ing, as well as public garages. The main floor is taken up by the offices.

The Taber Building is trimmed in mahogany and the Universal in gumwood. The large round supporting columns are fitted with round seats. The second floor in each building is given over to offices and machine departments. The third floor of the Universal Building is given over to the service department.



Accounting and Business System

Questions and Answers about Motor World's Simplified System of Accounting.

By T. W. Sneed

MOTOR WORLD is anxious that every user of the Simplified System of Accounting thoroughly understand it. Users are invited to write the System Editor. He will be glad to answer any and all questions which will help to a better understanding of the system.

Credit Memoranda

System Editor: (1) How should a credit memorandum be entered?

(2) Again, suppose a man bought two new tires and traded in two old ones on same, what is the debit entry and how should this be entered in our stock, Form 2?

(3) Suppose a car were purchased and a deposit of say \$850, more than half the price of the car, paid on same, no car having been marked up for this, should the cost of the car be taken out at the same time the first payment is made and, if so, how is it possible to tell that the proper amount is taken out, since the car isn't marked up to him?—MISS MAMIE WARD, Peru, Ind.

Answer—We assume you mean a credit memorandum that has been issued to you.

(1) You have returned a tire to your factory which is defective for replacement. When this is returned, you would charge the factory under All Other Accounts on the Debit side of Form 1 for the cost of the tire and on the Credit side of Form 1, under All Other Accounts, you would credit Tire Stock. When your credit memorandum was received, it would simply be an acknowledgment that the factory had allowed the charge that you sent to them in the shape of a credit memorandum.

Crediting Old Tires

(2) Where old tires are returned for new ones and the old ones taken in part payment, the entry would be made as follows: You would take two old tires in exchange, we will say for \$20, and you would make the entry on Form 1, placing the Debit entry on the Debit side of Form 1 under All Other Accounts to your used tire stock, and under the Customers Account column on the Credit side you would credit your customer with \$20. Then you take two new tires out of your stockroom and sell them to your customer, which would be treated simply as a sale and entered on Form 1 as follows:

Under Customers Accounts on the Debit side you would charge your cus-

tomer with, we will say, \$50 for the two tires and on the credit side of Form 1 under Sale of Accessories you would credit this sale for a like amount.

You now have under the customers accounts a charge of \$50 and a credit of \$20, and after these two amounts have been posted to his ledger account in the rear of the binder, he would owe you a net amount of \$30. If he should wish to pay this immediately, you would credit the \$30 on Form 1 under Customers Accounts and on the Debit side place the \$30 in All Cash Received.

(3)—In a transaction where a customer makes a deposit on a car, you do not treat this as a sale until the car has been delivered. We will say, for example, that you have received \$850 as a deposit on the future delivery of a car. You would place this on the Debit side of Form 1 in All Cash Received and under All Other Accounts on the Credit side you would credit this to an account called Prepaid Deposit or Customer's Deposit, John Jones. This would be one of your liabilities, just the same as if you owed a bill for the purchase of merchandise, until you had delivered the car when this credit to Customer's Deposit, John Jones, would be used as part payment of the sale price of the car when you delivered it.

Supplies Used in Shop

System Editor: We sell accessories of all kinds and use gasoline for power. Now we take our gas out of stock; should that be put on Form 1 under All Other Accounts on the Debit side and on the Credit side under Gas and Oils?

On Form 2 should that be entered under Repair Department account on the Debit side and on the Credit side All Other Accounts?—WARREN GARAGE, O. E. Starrett, treasurer, Warren, Maine.

Answer—When you use gasoline from your tank for your own benefit, that is, for power, an entry will be made on Form 1 similar to an entry where you sell a customer gasoline, but instead of charging it under the Customers Account column, you would charge it under the All Other Accounts column on the

Debit side to an account, which we will call Expense, Repair Department, Power, provided, of course, that the power was used in the Repair department.

The credit you would enter on the Credit side of Form 1 under Sale of Gasoline, Oil, Etc. Remember, of course, that this entry should be made at cost.

No entry is needed on Form 2 for this transaction, but, of course, under All Other Accounts on Form 1 you will have an additional expense in the Repair department to be added to the Repair department expense on Form 2 at the end of the month in order to get your total expense in this department.

Charging Shop Labor

System Editor: A little while ago I took up the work at this garage, and now I am on the books. I have been studying over the sample forms, and also the one office ledger, trying to get the correct idea of the system.

The person who preceded me was not thoroughly acquainted with Motor World's Simplified System, so I am asking you for a little information, as I want to keep the book correct, and be able to balance.

We use time cards in the shop; sometimes there is work which is really hours charged to the shop. Where and how should I enter it, as it is expense? Things used by the shop should be entered how? Should there be a page for office-shop, etc., in the personal accounts? Do you think extra books necessary for time-pay-gas.—M. ALLOWAY, Pueblo, Col.

Answer—When you receive a time-card from the repairshop showing work that was performed in the shop, such as cleaning tools or repairing some of the equipment, you would simply treat this on Form 1 just as you would a sale of a repair to a customer, with the exception that instead of charging it under Customers Accounts, you would charge it under the All Other Accounts column to an account called Expense, repair department, Upkeep, if it was for labor performed in the shop and for the benefit of the shop.

If it were for supplies and so forth, used in the shop, you would charge it to expense, repair department, Supplies.

Do not forget when charging such items as these to any department in your business, they should be charged at cost; the credit entry on the other side of Form 1 would be to the repair department, Income, or if the parts or accessories were taken from stock, it would be to the credit of the Parts and Accessories department.

Borrowing on Drafts

System Editor: We receive a carload of cars. Attached to the Bill of Lading is a sight draft. To take up this draft we borrow the money from the bank on our note. How would this be entered?

We sell parts to sub-dealers. The factory charges us with these parts, and we in turn charge the dealer. A sub-dealer returns a certain part to the factory, and they issue us a credit memorandum. We in turn issue credit memorandum to dealer. Please explain this entry.

We sell a car on which a defect develops a little later. We replace this defective part out of stock and return the defective part. The factory issues us a credit memorandum. This credit memorandum is deducted from our account the first of each month. How would this be entered?—YANKTON AUTO SUPPLY CO., Yankton, S. D.

Answer—The two transactions of listing a draft covering a carload of cars and borrowing money from the bank with which to do this are separate and distinct transactions.

Let us assume first that you wish to borrow the money and you receive credit from the bank for, we will say, \$3,000. When this has been entered in your bank book you make the following entry on Form 1:

Entering Bank Balance

On the Debit side you enter the \$3,000 under All Cash Received from the Blank National Bank and on the Credit side under All Other Accounts you credit an account called Notes Payable, Blank National Bank.

You then wish to list your draft, attached to which are your Bills of Lading for the cars, and we will assume that this draft calls for \$2,500.

On Form 2 you draw your check to the Blank National Bank, through which the draft has been drawn, entering it on the Credit side under All Cash Paid and on the Debit side of Form 2 under Stock Account you charge Car Stock with the cost of the cars that you have listed.

When the factory sends you a credit memorandum covering a part that has been returned by one of your sub-dealers, you would make an entry on Form 1 as follows, provided you treated your sub-dealer simply as one of your customers. Under All Other Accounts on the Debit side you would charge the factory with the amount of the credit, and assuming that you wished to give your sub-dealer the same credit, you would credit this

under Customers Accounts on the credit side of Form 1, to your sub-dealer's account.

This charge to your factory account when posted to the factory account ledger sheet in the rear of the binder would reduce the net amount that you would have to pay to your factory when you settle your account.

On the other hand the credit that you have made to your sub-dealer will reduce the amount that he will have to pay to you when he settles your account. If, for example, you do not give your dealer the same discount that you get from your factory, you would charge the factory account on the Debit side with the amount equal to that which they send you a credit memo for and on the Credit side you would Credit the sub-dealer with his proper discount and the difference you would credit under your Incomes, Parts and Accessories column.

Charging Spare Parts

When you go to your stockroom to get a part which you are to replace on a car that has been sold to a customer and for which there will be no charge, you would make the following entry on Form 1:

Instead of charging the part to the customer, you would charge it to the factory and ship them the defective part, placing the new part from your stock on the customer's car. This would be charged at cost and when the factory sends you a factory memorandum it is simply an acknowledgment that they have allowed you the amount that you had charged them for this defective part.

When this charge to the factory is posted to the factory account ledger sheet, it will, of course, reduce the amount that you will have to pay them when the account is settled.

Entering Owners' Salaries

System Editor: Kindly tell us the correct way to enter the salaries of the owners of the place when all of their salaries are not drawn.

Suppose that "A" salary was \$100 per month, to be divided equally between the repair department and car sales and he only drew \$50 out this month.

How could this be entered so that an expense of \$100 would be shown, and still show that he had \$50 still undrawn?

"B" salary is \$60 and is charged against the general department, and he only draws about \$40 a month.—MARTIN'S GARAGE, Thibodeaux, La.

Answer—We will suppose that A's salary was \$100 per month and you would make the following entry at the end of that month. Under the Repair Department on the Debit side you would charge \$50 to salary, and under the Car Sales department a like amount, and on the Credit side of Form 2 under All Other Accounts you would credit A, personal account, \$100.

Then if you wish to pay him any amount of this \$100 you would draw your check on Form 2, entering the amount under All Cash Paid on the Credit side and on the Debit side of

Form 2, under All Other Accounts, you would charge A, personal account, with the amount that you paid him.

The credit to A of \$100 less this debit to A of, we will say, \$50, will leave an amount still due A of \$50, which will show as one of your liabilities at the end of the month. In a similar way, your transaction with B would be worked out.

Jobbers' Column

System Editor: We would like to inquire as to the purpose and use of the column marked "Payable to Jobbers, Mfr. and Others" on the ledger leaves we have received.—SUBSCRIBER.

Answer—The columns marked, Payable to Jobbers, Manufacturers and Others are provided to record those amounts that you owe to your jobbers, or manufacturers or others from whom you purchase your goods or supplies.

For example, you receive a shipment of tires amounting to, say, \$500. This entry is made on Form 2. On the Debit side of Form 2 you will debit the stock account, Tire Stock, \$500, and on the credit side you will credit the Blank Tire Company \$500 under the column headed Payable to Jobbers, Manufacturers, and Others.

Later on, next month say, you wish to pay this bill and you draw your check on Form 2 under the All Cash Paid column and under the Debit account Payable to Jobbers, Manufacturers and Others, you would enter an equal amount, \$500.

This debit to jobbers, manufacturers and others payable would offset the credit to the same account which you made the months previous.

When to Start

System Editor: Please send me by express one of your Simplified Accounting Systems. Enclosed find check for \$12 to cover cost. As it now stands I guess it best that I start my year on April 1 or should I go back to January 1 to start? Stock will invoice \$3,000; tools, etc., \$1,800; second-hand cars, \$1,000; new cars invoice, and freight, \$4,000. Would thank you to supplement your regular instructions with any special ones that will be of benefit to me. At present I own a day book and loose leaf ledger. Shall I continue to use them and how?—SUBSCRIBER.

Answer—When to start the system; we suggest that you start on April 1.

It will be unnecessary to use your day book, as this is taken care of on Forms 1 and 2 of the system, which you will no doubt see at a glance as soon as you have started operating. We are not clear as to what you mean by a loose leaf ledger. If you mean a ledger carrying your customers' accounts, then this is also taken care of in the binder of Form 3, unless you are carrying a very large volume of accounts, in which case we suggest that you continue using your present binder until you have at least used the stationery you have on hand.

SCIENTIFIC CONSTRUCTION

GARAGES □ □ □ SHOWROOMS □ □ □ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

Two-Story Building, 66 x 132 Ft., on Hill

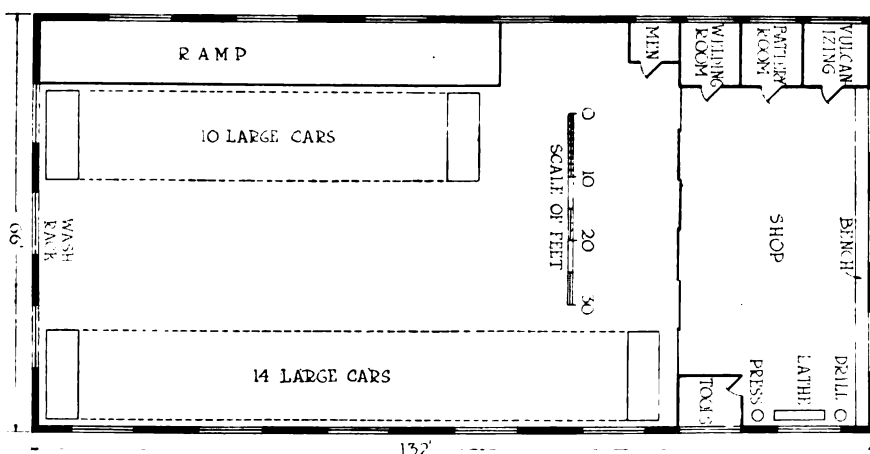
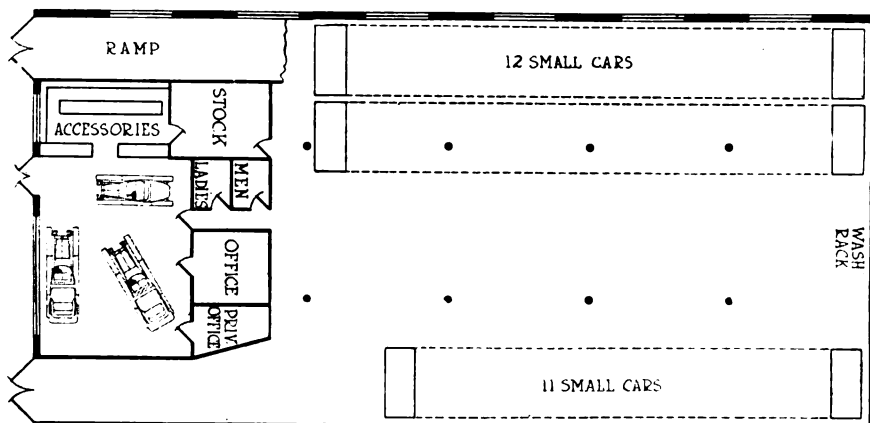
EEDITOR Motor World: Enclosed please find a rough sketch of our property. We intend to erect a fireproof structure at least two stories high, with only the heating and coal storage (one carload capacity) in the basement.

On the first floor we wish to have a small office for a cashier and a general office. When we get into the new building we intend to put our business on cash basis almost or as much as it can be done practically.

We also intend to have a room reserved that we can use as an accessory salesroom, as we sell magnetos and starters for Ford cars. We will also



The garage entrance at the left is on the street level; the entrance to the showroom is somewhat above the floor level; the right entrance is to the ramp. Since it is three or four feet above the first floor level, the incline to the second floor is very short



First and second floor plans, showing arrangement of departments. There are no posts on the second floor

stock tires after we get into larger quarters.

Please advise as to the best per cent grade that can be used in constructing the ramp.—Carl M. Anderson, Omaha, Neb.

Answer—You will note that the ground floor level is the lowest point and that consequently the windows, particularly the window of the accessory store, are somewhat shorter. However, this is not much of an objection. By placing the accessory store at the left (looking at the drawing from the front) the windows of the showroom may be made almost full length. You will require about three steps down into the showroom, and if this is a serious objection, we would suggest that you make your showroom level with the entrance door. This would lengthen the ramp on one hand and on the other hand you would require a slight down grade in the passageway to the main floor of the garage.

The most satisfactory grade for the ramp is 15 per cent.

You will require some posts on the first floor unless you desire to pay the extra cost of putting in heavy steel girders necessary to support the second floor load from the side walls. You will probably find that it will take considerably longer to obtain this steel work, and if you are in a hurry to erect the garage you will find this an objection.

There is no need for posts on the second floor, as it is a simple matter to construct a roof supported entirely from the side walls.

The thirty-third in a series showing

Dealers Who Have Made Good



Alfred Hume Sowers
Boston

WHEN one man can take an organization of three people, comprising one bookkeeper, one stenographer, and himself as manager, salesman, demonstrator, etc., with a small room for quarters, and in a little more than 2 years build it up to a force of 45 under his own jurisdiction and 250 to 300 more affiliated with him as sub-agents and their workers, with his middle initial H he should be rechristened "Hustler." That is what Alfred Hume Sowers has done with the Jackson in New England. It is a story of remarkable perseverance.

Sowers was born at Stamford, Conn., June 17, 1876. He prepared for Yale College, but changed his mind and took a job in the engine room of the Yale & Towne Co. when a lad. The automobile industry was just beginning to bud in 1900 when he went to Chicago to grow up with the industry.

He worked for the Locomobile company there, but wishing to get inside knowledge about gas cars he went to Harvey, Ill., to the factory of the Chicago Motor Vehicle Co. There he got all the principles and then joined Ralph Temple, Chicago's pioneer dealer.

The East appealed to Sowers and he started in that direction, making stops at Buffalo, Rochester, Syracuse, where he sold cars of different makes, finally landing in Boston in 1907. He sold different cars there until he got a chance to sell Jacksons at retail in 1911. He liked the line, but the arrangements were not what he wanted.

So in 1914 he made a proposition to the factory to give him a chance to show what he could do with it. He talked so convincingly with Howard Matthews, head of the factory forces, that the latter agreed. The New England Jackson Motor Car Co. was formed with three people.

Then Sowers took off his coat and hat and buckled down, working for himself then, for he was the real organization, with all New England for his territory. It began to grow. The salesrooms became too small.

To-day Sowers takes more Jackson cars than any other dealer. His office force in Boston comprises 10 salesmen, where before he had none but himself; a superintendent and 15 men in the service and parts department, where there were none before; branches in Brockton and Worcester operated from Boston; sub-dealers in all the other large cities and many towns in New England.

Where he sold a dozen cars 2 years ago he sells a hundred. And the business is growing fast. Yet Sowers is but 40 years old. So successful has he been that he could have had a big factory job any time in the last year.

The Why

Sowers says his success is due to finding time to assimilate all suggestions from everywhere, and studying them out nights.

Also through frequent trips to the factory to suggest ideas gleaned from his dealers and salesmen, who know what the buyers demand.

Likewise through continuous advertising so that Jackson is a well known name.

Following the plan of legislative bodies who turn the clocks back in order to make time to do things.

Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

Why an Engine Gallops

Editor Motor World: I have a model 83 Overland. Would you kindly explain me the cause of this car galloping. It runs good after the throttle is wide open, but if the throttle is opened quickly she will knock. The two back cylinders fire good for a while and then she changes off to the other two.

I have tried a new magneto, but that wasn't it, so I tried a new carbureter and that wasn't it. I ground the valves twice, tested the valve springs, put in new spark plugs, looked for air leaks. The valve guides are O.K., there is no water in the gasoline, timing and valve mechanism is O.K. and compression is good.—Walter A. Lanz, New York Auto Garage, Rockville, Conn.

Answer.—Your trouble is so difficult that it is impossible for us to put our fingers right on it. All we can do is suggest the places to look, and then it will be up to you to actually do the work.

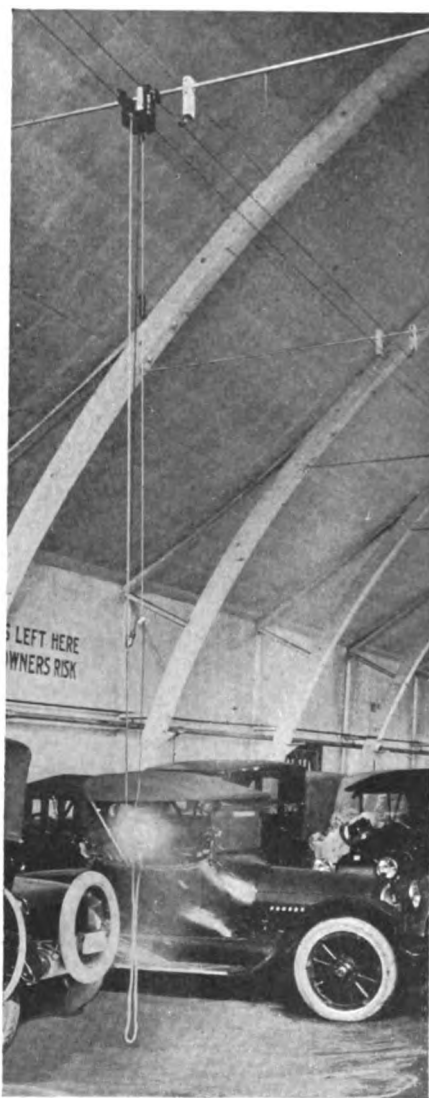
First of all, there are a few possible places that you have apparently overlooked. The missing may be due to carbon under the exhaust valve seat or to water, which leaks into the cylinder through the cylinder head casting or to sticking valves or to an air leak some place in the manifold. This leak might be through one of the gaskets or might be due to a defect in the casting.

After you have exhausted these possibilities, you must necessarily come to the conclusion that notwithstanding the care with which you have tried to run down this trouble, that somewhere you have slipped up. The fact remains that if the carburetion is correct, the ignition is good, the timing is right and the compression is O.K., your motor will not gallop. Consequently, if you go over these things carefully, one by one, you will sooner or later find the trouble.

It does not seem likely that the trouble is in the carbureter, inasmuch as you have tried two carbureters. Furthermore, it is not hard to adjust any carbureter so that the motor will run smoothly at low speeds. However, this does not mean that the trouble is not due to an improper mixture. As previously suggested, there is a good chance that air leaks in through some sort of an opening in the manifold, and you should go over the intake passage all the way from the carbureter to the valve very, very carefully. Test for air leaks by observing the smoke from a cigarette.

If the clearance between the valve

A Traveling Drop Light



The drop light problem has been solved by the Hartford Bulck Co., Hartford, Conn., in a most unusual but very satisfactory manner. Two uninsulated wires high above the cars form a track on which runs a small car which carries the light. The wires furnish the current which is carried through the wheels down to the light itself. The advantage of this system is that it keeps the drop light off the floor and also renders it instantly available in any part of the garage.

Used Car Price Record

Look on Page 44

stems and their guides seems to be excessive, you might see if you can't remedy the trouble temporarily by smearing them with heavy cylinder oil or grease. This would show whether the trouble was here or not, although it does not seem likely.

There is a slight possibility that there are high spots on some of the cams and that the pushrods are adjusted so tightly that the high spots hold the valves off their seats part of the time when the valves should be closed. If examination proves that this is so, the remedy is simply to increase the clearance between valve stems and pushrods.

Are you sure that your trouble is not due to some little thing which is very easy to overlook? Quite often it turns out that troubles which really seem very big are very insignificant when the difficulty is actually run down. It is so easy to take things for granted. For example, you may find that with the throttle closed, the linkage is in such position that a partial short circuit occurs.

You must realize that in testing the motor by putting on a new magneto, you assume that the new magneto is O.K. It is quite possible that this is not the case. It may have any one of a great many defects, and most likely the breaker points are too far apart. Furthermore, in putting on this new magneto, you may not have timed it correctly.

If the motor will run at its lowest speed with throttle wide open and still hit on all four cylinders, the difficulty is not in the ignition system but in the carburetion, and under this, of course, come leaks of any sort into the intake manifold or the cylinders, or through the valves. You can test this out by dropping the car down as low as possible on high gear, opening the throttle and applying the brakes so that the car speed will not rise above the minimum. Thus you can run steadily at probably 4 or 5 m.p.h. with throttle wide open.

Another thought which comes to us is that there is a slight possibility that the camshaft is twisted, in which case some of the valves would be in time and some out.

Letters for Building Accessory Business

Editor Motor World: Will you please send me circular letters which would help increase the sale of accessories?—Chas. P. Bogart, Manager Elkbloom Motors Co., Yonkers, N. Y.

Answer.—The letters No. 1 and No. 2 are general ones and are designed to install confidence into prospective customers and thus eventually make them customers.

Letter No. 3 is a general one, which may be sent to all motorists, whether customers or not.

No. 4 is a letter designed to sell shock absorbers, and may be sent to owners of hard riding cars, particularly, and letter No. 5 should be sent to owners of cars which are having oiling trouble.

BUSINESS AND FRIENDSHIP

No. 1

We object to the word business; it is too cold and unsentimental. A permanent and steadily growing business can only be built on **FRIENDSHIP**. Friendship is founded on consideration. It means unselfishly looking out for our friends' best interests. No temporary advantage, no matter how great, could induce us to do anything that would turn one friend against us because in the long run we should be the losers.

We like to think of our customers as our friends, and those who have come to know us well reciprocate the feeling. It is an ideal way to run a business. We are continually on the lookout for our **FRIENDS'** best interests. First, because, as we said at the outset, it is the only way to build a continuously growing business, but also because this business is our hobby. We are proud of it, but if we could not idealize it, it would be an empty hobby.

You will instantly recognize the advantages of this broadminded policy when you come to our store.

GET EVERYTHING YOU NEED

No. 2

Are you prepared for the spring drive? No, we're not joking but deadly in earnest. There are many little supplies and accessories which you will need during the next few months, and you will save time by buying them **ALL AT ONCE**. Furthermore, by doing this, you will have the things when you need them and not suffer any inconvenience for the lack of them.

Below is a list which will aid you in determining what you need—or if you are to busy, if you will leave your car at the garage we shall be glad to make out the list for you.

Tires	Leather and top
Tubes	renovator
Soapstone	Enamel
Tire valves, valve	Soap for car
caps and dust	Soap for hands
caps	Waste
Patches and blow-	Engine oil
out patches	Cup grease
Portable vulcan-	Dusters
izer	Caps
Spark plugs	Gloves
Electric bulbs	Overalls
Fuses	Safety first kit
Hydrometer	Folding bucket
Tools to replace	Flash lamp
those lost	Spot light
Brass polish	Dust covers
Body polish	Chamois
	Sponges

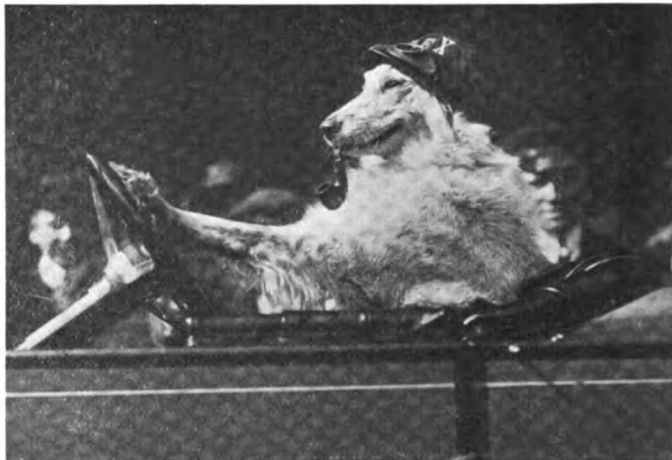
POUGHKEEPSIE REX IS ONLY DOG CHAUFFEUR

Rex Bowser Weed, better known as Poughkeepsie Rex, is in some respects the most distinguished dog in the world, for he is an expert driver. He steers the car solely by the pressure of his paws on the rim of the wheel and no outside aid is given him. The operation of the levers and pedals, however, is accomplished by his owner, Irving K. Weed, who sits beside him.

He has just completed a several weeks' engagement with the Scripps-Booth Motor Corp., appearing at the wheel of a Scripps in New York, Detroit, Chicago, Kansas City, St. Louis, and Omaha every day during show week in these cities, and attracted wide attention everywhere.

The dog is a Collie and learned to drive as a result of his close association with his master, who is in the used-car business in Poughkeepsie.

Rex never drives without his pipe, and he always wears a smile when behind the wheel, as the picture will prove.



AN UNORDINARY STORE

No. 3

Our accessory store is not just an ordinary store but it is an institution to **PLEASE YOU!** We are not so interested in what you buy from us to-morrow or the next day as we are in how much you are going to buy in the next 10 years. We want your trade indefinitely and in order to obtain it our service must be well-nigh perfection, and we are trying to make it so.

Everything we carry is sold with the idea that it can be returned, and no questions asked, and you are the final judge.

When you are in doubt as to what to buy, and you look to us for advice, our reply is based on what is best for your interests, and not what will give us the biggest immediate profit, because we know that eventually we are going to make more money by conscientiously serving your interests. We know that this policy will not only hold your trade but will draw your friends to us.

Our stock of accessories is complete—but should you ask for something unusual, and we do not have it, there is no need going elsewhere. We will get it for you **QUICKLY**, even if it means telegraphing for it, or sending out a special messenger—that is service.

We should like to have you become acquainted with our extraordinary store. We don't care whether you buy or not, on your first visit. We want you to become familiar with the fine personnel of our organization, and we want you to size up the store, and if you are suited we shall be supremely pleased to serve you.

IMPROVING THE RIDING

No. 4

The riding qualities of your car may be improved by fitting **X** shock absorbers. These are of the supplementary spring type and have the effect of increasing the length of the standard spring several inches. In other words, the supplementary spring adds to the flexibility. But it has the advantage over a long leaf spring (which would give the same effect) in that it is stronger.

The **X** shock absorber, which sells for \$15 attached, is strongly made and will not rattle after continued use. We shall be glad to fit a set to your car, and if you are not tickled to death with the improvement they make, we should be still more glad to remove them; but we know this is a safe offer.

REMEDY FOR OVER-OILING

No. 5

Some 1916 Blank cars have suffered from too much oil, the result being fouled spark plugs and carbonized cylinders.

We have found a guaranteed cure for this trouble; it consists in fitting **X** soot-proof spark plugs, **Y** non-leakable piston rings, and the substitution of a heavier oil—we recommend **Z** oil.

We have had the satisfaction of successfully applying these remedies to several **X** cars lately.

The cost is reasonable because we have had enough experience doing this one thing so that we can do it in minimum time.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. Always send copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Car Sales Contract

Editor Motor World: In the year of our reading of your valuable motor magazine we have looked constantly for you to show a good binding contract for the sale of automobiles. As yet you have never published any at all, so we are writing for suggestions.

Our contract file is 4½ x 8½ inches, so, of course, the contract would have to be that size. It should be in duplicate.

We are enclosing the one we have been using and wish to hear your suggestions.—Fred. J. Smith, Oshkosh, Wis., South Main and Seventh Streets.

Less than a year ago—March 29, 1916, to be exact—we did publish a contract of the kind you inquire about. The best form of contract that I know of, which is fair alike to dealer and to customer, is the one set out below. This form is simple, but it is in all respects complete, and it is recommended after examining a great many different contracts used by dealers.

If you take a car in trade when you sell a new car, you can add a paragraph

This Is the One in Use

THE KISSEL KAR GARAGE

Oshkosh, Wis. 191..

Please enter my order for one
Model Kissel Kar, specifications,
equipment and guarantee in accordance with
the catalog issued by the Kissel Motor Car
Co., Hartford, Wis., as applies to this particu-
lar model, copy of which is on the back of
this order, to be delivered about
and for which I agree to pay as follows:
Car F. O. B. Hartford, Wis.
Freight

Total
Less Deposit
Balance on delivery of car

Signed
Address

This order not binding unless
Accepted: The Kissel Kar
Distributors.

Purchaser

Salesman

like the following with good results:
"It is understood and agreed that if this order is canceled used cars taken in exchange for part payment of the purchase price and sold by the company prior to said cancellation may be accounted for at the price sold or at the price allowed for the same in exchange in its discretion."

Careful With Borrowed Property

The Supreme Court of Oklahoma has just held in a case that a person borrowing personal property must use at least ordinary care to preserve it, even though he is paying for its use. If a person should hire a motor car from a dealer, he would be responsible for any negligence coming to the car on his part.

Here Is the Contract Mr. Kaiser Suggests

THE MOTOR CAR COMPANY OF NEW YORK, INC.

New York, March 25, 1916

THE MOTOR CAR COMPANY OF NEW YORK, INC.

Please enter my order for a motor car, Model
..... at the agreed price of \$..... plus freight charges
and extras, according to the following terms and specifications:

CAR		STANDARD EQUIPMENT	
Body Color		Mohair Top (with curtains)	
Chassis color		Top Cover	
Upholstering		Windshield	
Tires		Robe Rail	
Lamps		Speedometer	
Price of car..... \$....		Tire Irons	
Freight from factory.....		Demountable Rims	
Price of extras.....		Extra Rim (one)	
Gals. gasoline		Non-skid Tires (rear)	
Qts. cylinder oil.....		EXTRAS	
Total price	\$....	Electric lighting and starting. \$....	
Less deposit	\$....	Trunk	
Less used car	\$....	Tires	
		Tubes	
Balance due on delivery.....	\$....	Total extra equipment.....	\$....

Remarks:

Delivery of this car is to be made on and, in the event of failure to make delivery of the car within thirty days after said date, I reserve the right to cancel this order and you agree to return the deposit. If within thirty days after notification that the car is ready for delivery full payment is not made, it is understood that the advanced deposit is forfeited.

It is understood that the car is sold with the standard warranty of the National Automobile Chamber of Commerce, a copy of which will be found on the back of this contract, and it is mutually agreed that there are no promises, verbal understandings, or agreements of any kind pertaining to this order not contained herein.

It is understood and agreed that this contract is not to be binding on the company until accepted in writing by an officer of the company.

Dated, New York, March, 1916.

Salesman.

Purchaser.

Address

Accepted: THE MOTOR CAR COMPANY OF NEW YORK, INC.

Witness

By

As



Keeping Up With the Prospect

"I DON'T know whether both our new salesmen will turn out to be wonder boys or not," remarked Tommy Trumbull, as, newly promoted to sales manager in the Reilly organization, he looked over the cards that the two tyros had turned in for their day's work.

"How are they doing?" asked Reilly, who paid the salaries and took an intense interest in things.

"Fairly well, although it's rather early to make any predictions," replied Tommy.

"It's a hard job to get good salesmen, Tommy. That's one of the problems of the dealer's existence. If I could get four salesmen who were as good as I should like to have them I could clean up a lot of money—and so could the salesmen.

"Maybe you never thought of it in just this way, Tommy, but our industry is like a man who is all muscle and little brains. It has been abnormally developed, on one side only. I don't mean to say that salesmen haven't any brains, for there are some mighty smart boys selling cars and accessories to-day, but I do mean that we haven't developed the man side of the industry. We have spent all our time and energy developing the car.

Laps Behind the Prospect

"We have kept up with progress on the car side, but we haven't kept up on the other. The salesman has kept up with the development of the product, but he hasn't kept up with the buyer. He is several laps behind the prospect. He knows the car from A to Z, but he doesn't know the buyer.

"He is, in so many, many cases, still treating the buyer as though the buyer were of the old, curved-dash, one-lung type. And the buyer isn't! He's a twelve-cylinder breed all the way through, with streamlines and a starter and a tire pump and red wire wheels. The buyer has become an expert buyer, while the salesman hasn't kept pace with him in salesmanship.

"To-day the salesman is quite well posted on the mechanics of the car and

By Ray W. Sherman

its development, but he isn't so well posted on the mechanics of the buyer. You can ask the salesman why a twelve is better than a four or a six or an eight and he can give you quite a story. You ask the same salesman what is the best way to get to the prospect and he is likely to tell you that he gets most prospects through owners who like the car.

Owners a Source of Prospects

"That is true. Owners are always a source of prospects, but the salesman's idea is to wait until the owner volunteers the name. That's old curved-dash stuff. The salesman doesn't think of having periodic calls made on owners with the object of worming these names out of them.

"In the old days the buyer was ignorant and keenly curious about the car and would believe almost anything the salesman told him. The buyer, however, has developed to the point where he knows a thing or two about cars himself and isn't buying cars. They have to be SOLD to him.

"In order that cars may be SOLD to the buyer the salesman must understand the buyer, and in order to understand this the salesman must make a study of buyers. He must become a student of salesmanship. To some extent he is doing this, but he isn't doing it as much as he should.

Buyer Knows All About Cars

"The buyer didn't use to care much about folderols and details of finish. He bought cars because they would run. To-day he knows all cars will run and is buying more and more on the strength of body design, comfort and finish. Yet so many salesmen keep explaining to the buyer the wonderful insides of a car when he in a general way knows all he wants to know about it. The salesman, not realizing this new attitude of the buyer, works away on a wrong point of

attack. The result is that he makes his way hard and his results less.

"And buyers used to be a gullible sort with plenty of money, while to-day they are sceptical and watch closely the prices of cars. Sales were easy in those days—when made at all. To-day the sale requires a more scientific procedure, and many salesmen have not developed this scientific attack.

No Looking at the Future

"It is the same with dealers. They used to get in a stock of cars, hire some salesmen and tell the boys to go to it. There was no instruction to speak of and the dealer never thought of such a thing as sales study. He didn't look into the future and realize that the buyer of the days to come would have to be handled by skilled men or sales would not be up to their possibilities. He didn't see that he as well as the salesman had a big development to achieve if he were to keep up with the growth of the industry.

"And so, to-day, dealers are hiring salesmen and wondering why they aren't better. I'm doing it myself, although I do try to get some sort of instruction to the new boys. That's one of the things you'll have to take up. I tried and tried to get Charley McGrain to do it. I wanted him to get up a course in salesmanship for us or put us in touch with a course of some sort that would make us all more efficient. But, as I told you the other day, I couldn't get him to do anything unless I sat right on his heels every minute.

"When buying cars was a new experience for buyers they were easier to handle. But they have grown old at it. The buyer of to-day is a man with a keen mind. He is a success in life. He has a knowledge of salesmanship, even though he does not call it salesmanship, and he works it to the limit in his dealings with the car salesman. The salesman does not realize that he is NOT as successful a man as the buyer—but he isn't. If he were he would be buying cars instead of selling them."

Repairshop Shortcuts

From The Motor World Roadman

(No. 1144) PARTS WASHING TABLE

This parts washing table is large enough to permit any part of the car to be cleaned. But more important, it may be moved to the job. A wooden basin, or sink, 5 ft. long, 2 ft. wide and 6 in. deep is mounted on legs, and lined with tin. A drain plug is placed in the center, permitting the dirty cleaning solution to be drawn off into a pail hanging beneath the stand. Gasoline may be used for cleaning parts, but kerosene is cheaper and safer.—A. L. Johnson, Tremain Rankin, Fort Dodge, Iowa.

(No. 1145) PISTON ASSEMBLY VISE

This vise facilitates piston assembly work. It comprises an L-shaped base, carrying a fixed and a movable jaw. The movable jaw is operated by a cam, and the piston is firmly held between two fiber plates. When the piston is so held, the connecting-rod may be inserted, the wrist-pin put in place, and readily locked. Not only is the piston held without the possibility of injury, but the work may be better done. With the exception of the cam and cam plate, the device is cast iron throughout.—Swaner Motor Car Co., Fort Dodge, Iowa.

(No. 1146) PISTON RING CLAMP

Ford piston rings may be readily inserted by the use of this clamp. The form of the clamp is familiar, the feature being that it is made directly from the retaining strap of a Stewart Vacuum tank. The only work necessary to convert the strap into a piston clamp is to straighten out the lugs in the manner illustrated. These straightened lugs serve as a handle, and permit the rings to be compressed with a slight pressure.—W. D. Seanor, Woodward Tire Repair Co., Detroit.

(No. 1147) CONNECTING-ROD ALIGNMENT JIG

It is essential that the two bearings of the connecting-rod be in perfect alignment. Not only should they be parallel, but they should also be in the same plane. The jig illustrated is designed to test these with one setting. The connecting-rod is held on an arbor, and a second arbor placed in the wrist pin bearing. Knife edges are used to check the alignment of the two arbors, one pair for parallelism horizontally, and one for vertical parallelism, the rod being swung from one test position to the other.—Swaner Motor Car Co., Fort Dodge, Iowa.

(No. 1148) BEARING SCRAPERS

A very satisfactory set of bearing scrapers may be made from old files. Two such scrapers are shown. The first is ground from a part round file, after being carefully heated and forged to approximately the desired shape. The second is ground directly from a triangular file, without forging of any sort. By careful grinding on the emery wheel and finishing the cutting edges with an oil stone, the scrapers should be as good as any purchased.—W. D. Seanor, Woodward Tire Repair Co., Detroit.

(No. 1149) AXLE HOUSING STRAIGHTENING

By this method, bent axle housings may be straightened without removing them from the car. The point of bend is determined, and a steel bar, about 4 ft. long and the same size as the inside of the housing, is inserted to the point of bend. A welding torch flame is then used to heat the point of bend, and pressure is applied to the bar, bringing the axle back to true.—Ed. Smith, Standard Automobile Co., Cadillac, Louisville, Ky.

(No. 1150) SHOP BLOWTORCH

Small soldering jobs, especially in cramped quarters, may be most readily done by means of a blowtorch. Such a torch may be made from pipe fittings in the manner illustrated. In brief, it comprises a piece of pipe, attached to the gas main by a length of rubber hose, with another piece of pipe, attached to the air line, and welded to the gas nozzle as shown. A spacer cross-brace is welded between the two pipes, at the rear, making the torch a unit. A valve on the gas pipe renders regulation of the flame easy. Though this torch is somewhat small for brazing jobs, a heavier torch could readily be made for that purpose.—E. E. Thodes, Woodward Tire Repair Co., Detroit.

(No. 1151) RADIATOR TESTING

All openings of the radiator must be plugged before air pressure may be applied, to test for leaks by immersion in water. Ordinarily this is done by soldering up the openings. By the method illustrated all the openings may be stopped in an instant. The filler opening is closed tightly by placing a rubber gasket beneath the filler cap, and screwing it in place. The inlet and outlet are stopped by rubber corks, that are inserted, and then expanded by squeezing

them together with thumb screws. The overflow is stopped by screwing a tapered cap screw into it. Air pressure is applied through a special nipple, one end of which is screwed into the drain plug hole and the other attached to the air line.—Velie Motor Vehicle Co., Moline, Illinois.

(No. 1152) REO CLUTCH TOOL

This is a simple tool for compressing the clutch springs on the Reo when assembling the clutch. It is a strip of flat iron, bent into a square, and riveted together by a cross strip as shown. Holes are drilled and tapped at each side of the cross piece for the pressure screws. In addition to holding the ends of the top together, the cross strip also furnishes sufficient material to give the pressure screws a good purchase. The lower cross strip should be notched in the manner illustrated.—W. D. Seanor, Woodward Tire Repair Co., Detroit.

(No. 1153) CLEANING TANK

This is a cleaning tank, in which gasoline or kerosene is forced by air pressure in a form of a spray onto the part to be cleaned. The container is an old hot water heater boiler. Air pressure is applied through a tire valve soldered to the tank, and the cleaning solution is drawn up through a small tube to the outlet pipe. A length of rubber hose, terminating in a copper tube, fitted with a valve, completes the outfit. Either gasoline or kerosene may be used as a cleaning solution, but the latter is preferable.—Frank Petrick, Masons Garage Co., Davenport, Iowa.

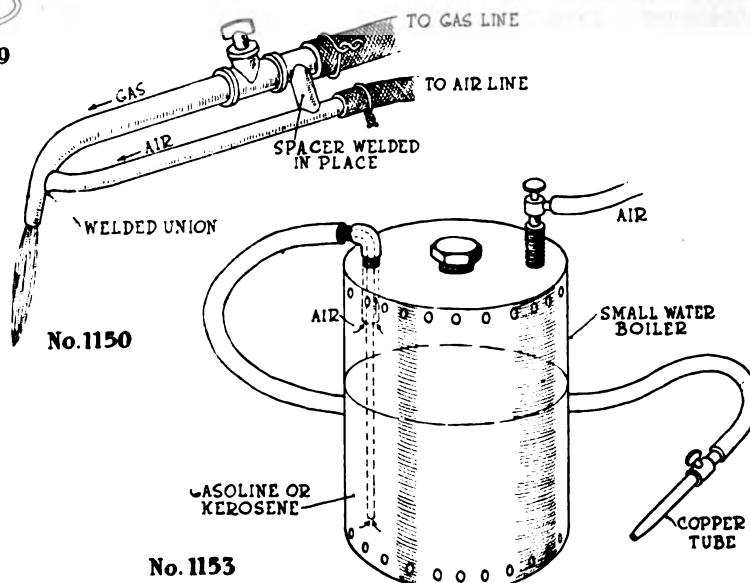
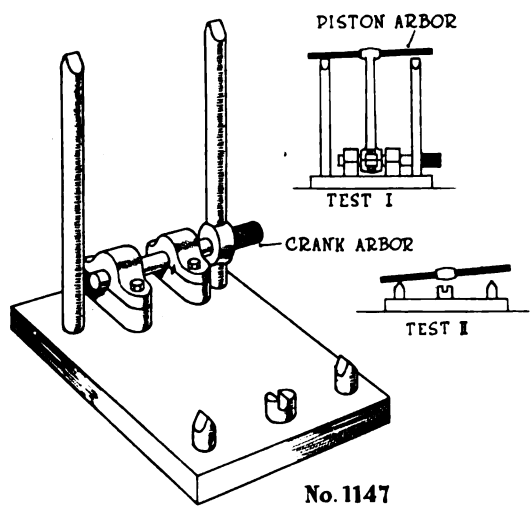
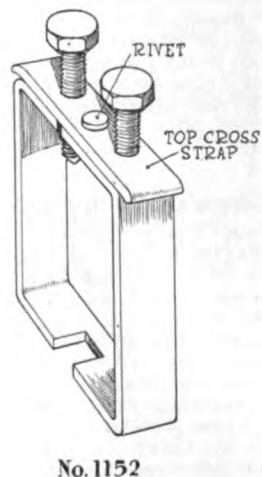
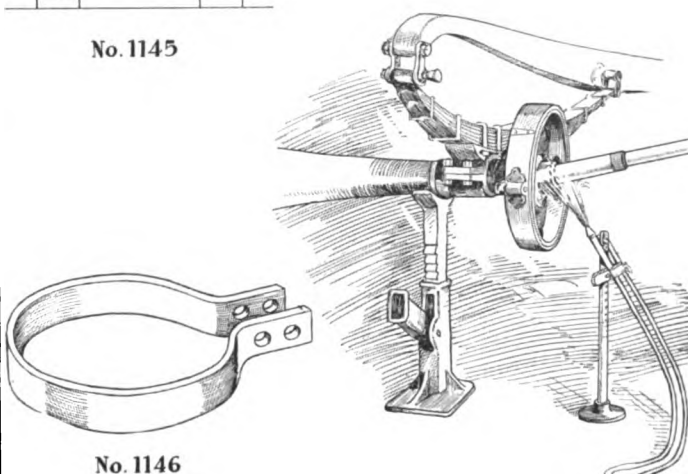
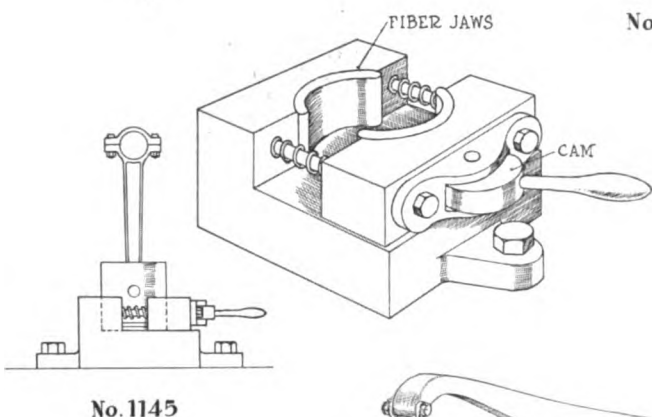
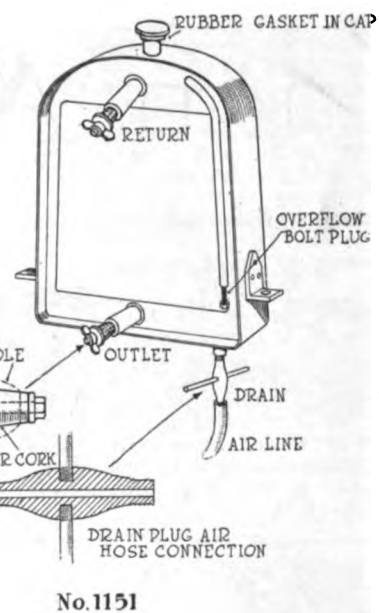
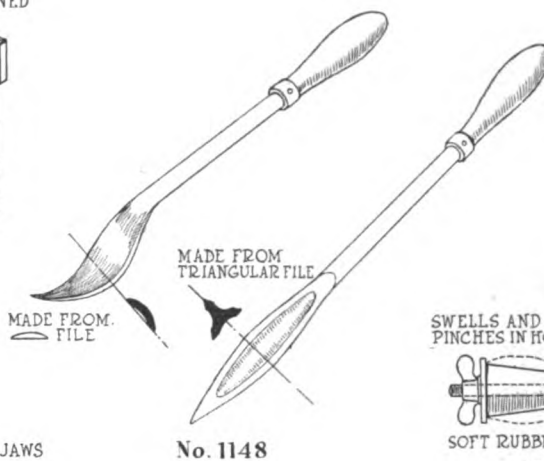
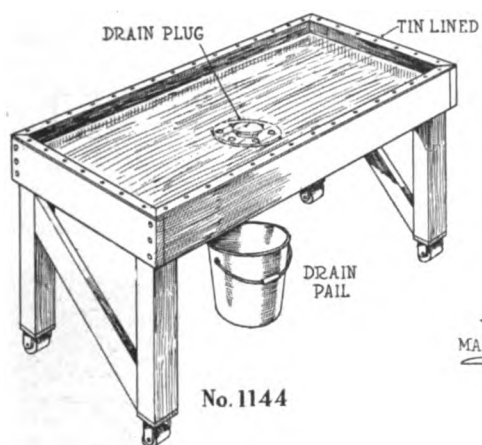
Primer Locked for Economy

Drivers of Hudson cars equipped with Lunkenheimer primers are likely to neglect the locking of the primer piston in its closed position after the motor is started.

The result of this is very poor gasoline mileage. It is equivalent to running with the choke partially on, as an excess of fuel is drawn into the motor through the priming device itself.

This primer is so constructed that the plunger, when not in use, may be pushed in, turned slightly, and locked in the closed position. When the plunger is in this position, no gasoline can be drawn into the motor through this device.

It is important that you notify your owners of the importance of this precaution, as too much gasoline means excess carbon, fouling spark plugs, missing and a dilution of the crank case lubricant.



Accessories

HORSEY'S CEMENTLESS PATCHES

These patches are hand made of best quality para rubber, thick in the center and thin at the edge. No gasoline is required to apply the patch. It is said that the heat of the tire has no effect on the permanency of the patch.—Horsey Mfg. Co., Cleveland, O.

VAPOR MOTOR GAS

A liquid which is mixed with the gasoline and is said to reduce the gasoline consumption and prevent the formation of carbon. The proportion is two and one-half ounces of the liquid to 5 gal. of gasoline for cars under 25 h.p., and 1 oz. to 5 gal. for larger cars. Price \$1.50 per pint can.—Paul Mercier, 907 John St., Utica, N. Y.

LAMCO SPEED BODIES

Built for Maxwells and Fords, the body comes complete with imitation circassian walnut dash, drilled and ready to mount the steering post, switch pedal and speedometer. The present gravity gasoline tank, hood and radiator are used. Floor boards are linoleum covered and aluminum bound. There is ample space for luggage in the rear. A large sized steering wheel is furnished. The standard colors are Stutz blue and white and Mercer yellow, although other colors may be ordered. Price \$130.—Lehman Mfg. Co., Cannelton, Ind.

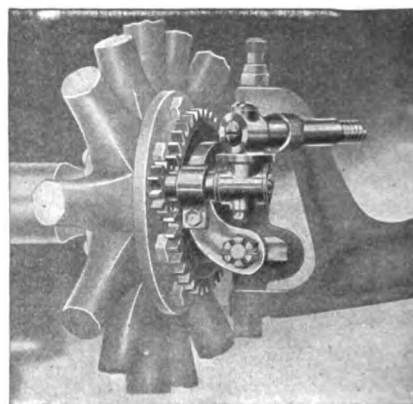


CHAMPION DISPLAY CONTAINER

Champion Minute spark plug cleaner container holds ten cleaners individually packed in wooden carrying cases. It is so designed that three containers are always visible through the opening in the center of the front side. The spark plug cleaner, as described in Motor World some time ago, is a glass tube containing a large number of needles. The tube is screwed on to the spark plug after being filled with gasoline. Shaking the device will quickly remove carbon from the spark plug surface due to the impact of the needles.—Champion Spark Plug Co., Toledo, O.

CORBIN - BROWN SPEEDOMETER FOR FORDS

The method of mounting the speedometer by hanging it is new. Thus the front of the instrument is flush with the edge of the cowl. The face of the speedometer is slightly tilted to facilitate reading. The swivel gears are made in one piece with the shaft and are hardened. There is ample room for grease. The application of the instrument only requires the removal of one nut from the steering knuckle.—Corbin Screw Corp., New Britain, Conn.

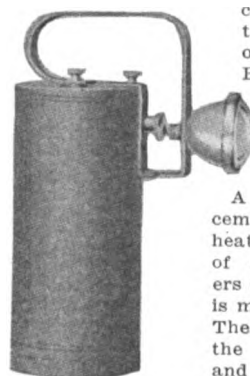


MIDGEY HAND LAMP

A simple attachment for converting a dry cell into a trouble lantern. Price, without battery, 75 cents.—W. J. Bailey Co., Newark, N. J.

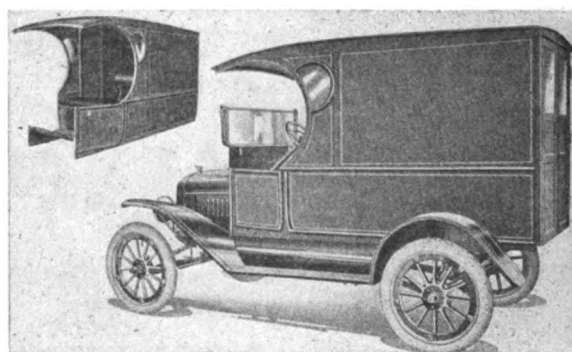
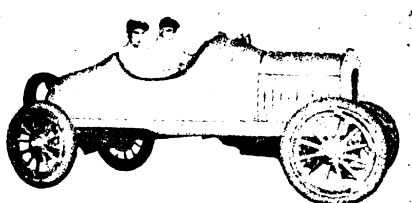
COMPASSES FOR MOTORISTS

Compasses in watch cases of either the open or the hunting case type. The prices range from \$1 to \$5 according to design of compass and finish of case, which may be nickel, silver or gold filled. The one illustrated sells for \$1, and is known as the Leedawl.—Taylor Instrument Companies, Rochester, N. Y.



RIE NIE AUTO PATCH

A three-ply rubber and fabric cementless patch used without heat or tools. There is a layer of rubber between two layers of raw rubber and the whole is mounted on a sheet of fabric. The vulcanized rubber makes the patch absolutely leak-proof and the fabric reinforces it. It comes in sheets 36 in., 50 cents; 108 in., \$1.—Durkee Atwood Co., Minneapolis, Minn.



HENNEY COMMERCIAL BODIES FOR FORDS

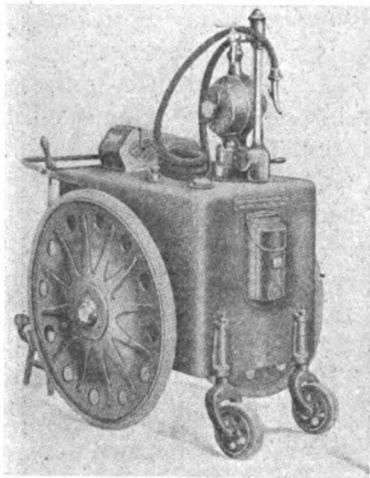
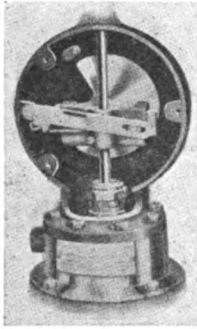
A large variety of bodies is made, including express bodies with and without tops, open bus bodies with longitudinal seats and steel paneled delivery bodies with driver's compartment open, or with four doors or fully

enclosed. In addition, small bodies are made for mounting on the back of the Ford runabout, one type being open and designed particularly for dairy work and another with a steel panel box and another open type with flare boards.—Henney Buggy Co., Branch of Moline Plow Co., Moline, Ill.

SHOTWELL GASOLINE PUMP

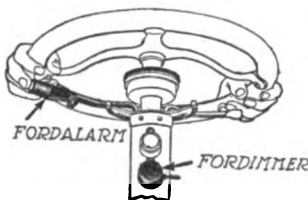
Shotwell gasoline and oil pumps are distinguished by the fact that the crank handle does not operate the pump piston through a rack and pinion, but by a sliding block and cross-head. The advantages claimed for this feature are greater speed and ease of operation, and accuracy.

Pumps of all types are made, including a curb design with square base and electrically-lighted globe at the top. The portable filling station is equipped with filter, meter and anti-syphoning hose - draining valve, contents gage, and locking fill pipe cap. The anti-syphoning feature is a guarantee against syphoning of the contents and also a guarantee of constant measurement for hose and can discharge. Autographic register and charge slip box are furnished as extras. Square oil tanks with or without roll top feature are also made.—Shotwell Pump and Tank Co., Indianapolis, Ind.



THE FORDIMMER

This device is designed to prevent the lights of the Ford from burning out at high engine speed. It consists of a variable lever-controlled resistance mounted in a case attached to the steering column. As the engine speed increases, the voltage increases, but the voltage reaching the lamps is cut down by changing the switch lever. The device may also be used as a dimmer in city driving. Price, \$1.50. Detroit Novelty Mfg. Co., Marquette Bldg., Detroit.

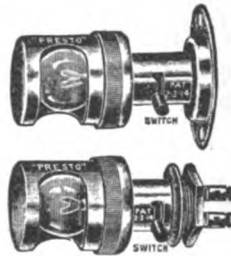
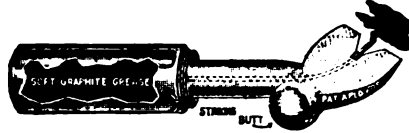
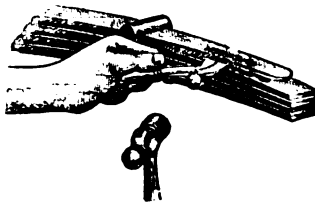
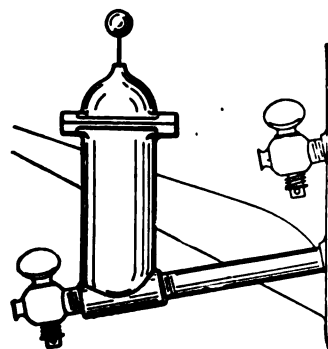


APCO GAGE FOR FORDS

The new oil gage has been improved by eliminating the glass. The device has a float and rod with a white indicating ball at the top. A draining petcock is included. Price, 50 cents.—Auto Parts Co., Providence, R. I.

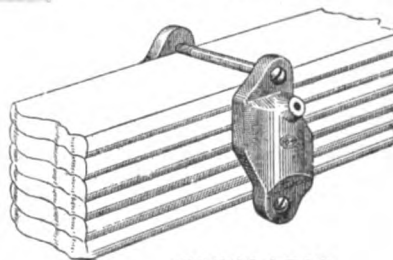
OSPECO WINDSHIELD PARTS FOR FORDS

By means of two side brackets and four friction hinges, the Ford windshield may be made adjustable for clear-vision, ventilating, or closed position. The installation requires no machine work, and may be done by anyone. Price, complete, \$5.—The Ospeco Mfg. Co., Inc., Detroit, Mich.



TARLTON AXLE SHAFT GUARD

A retainer to prevent grease from leaking out of the Ford axle ends. It is placed just inside the wheel. Price, \$3.—P. E. Tarlton, 456 E. 27th St., Los Angeles, Cal.



SPRING LEAF LUBRICATORS

May be attached to any spring up to 2 in. thickness. Large oil reservoir with concealed felts. They are quickly attached and neat looking.—W. J. Bailey Co., Newark, N. J.

TOMAHAWK SPRING LUBRICATOR

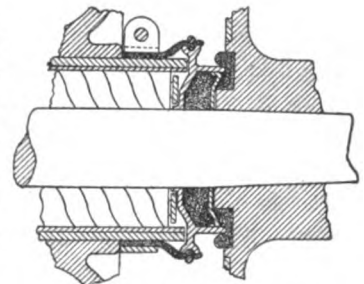
The edge of the hatchet is inserted between the leaves and the handle is turned, thus forcing the lubricant out. Lubricant should be applied near the ends of the springs. Price \$1.25. A special graphite spring lubricant sells for 50 cents per tube.—Charles W. Manzel, Buffalo, N. Y.

APCO TOW CHAIN

The links are specially treated and rustproof. It weighs 4 lb., comes in a canvas bag, and occupies little room in the car. Price, \$2.50.—Auto Parts Co., Providence, R. I.

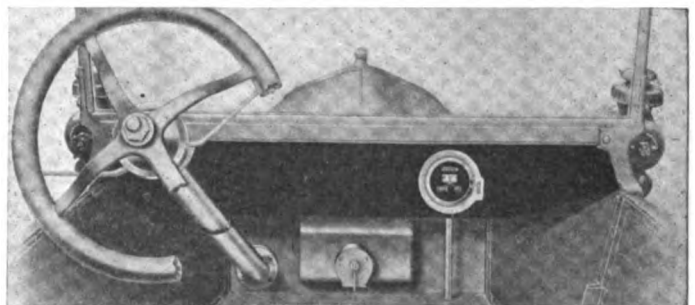
DASH LAMPS FOR FORDS

The Bull Pup and Bull Terrier dash lamps are designed for cowl dashes made by speedometer manufacturers, for Fords. The former is for wood cowls and the latter for metal cowls. A switch is combined with each lamp.—Metal Specialties Mfg. Co., Chicago, Ill.



PITTSBURGH BATTERY LIGHT

Designed for motor trucks and motor boats and pleasure cars not provided with electric systems. It has a powerful focusing lens in conjunction with an 8-in. parabolic reflector which produces a strong beam of light, considering the low consumption of current of 1 ampere. Price \$5.—Pittsburgh Electric Specialties Co., Pittsburgh, Pa.



STEWART INSTRUMENT BOARD FOR FORDS

It is black enamelled wood and supersedes the former one of steel. It is installed without bolts, screws or brackets, being grooved to fit the cowl. It is only necessary to pull the steering column down slightly and

spring the board into place. The advantage of the wood board is that it makes it possible to mount clock, headlight switch, priming lever or other devices on it. Price, complete, with Stewart speedometer, \$11.25.—Stewart-Warner Speedometer Corp., Chicago.

Editorial Observation

Do Your Bit

THERE is a job for every man in our great war. There are jobs at the extreme front and the extreme rear. Some of us must fight and the rest of us must back up the fighters.

This week President Wilson has sent a personal message to us all, asking us to co-operate in the best way we can in the enormous task that America has cut out for herself.

But without any message from any one there are certain obvious duties for each of us. The first big duty is to revive our latent patriotism, for with many of us it is latent. It does not mean that we should develop the shouting, hurrah kind, but that we should become earnest of heart, determined, willing, anxious to do our bit.

The war work must be handled by organized effort—that is obvious. It won't avail much to go off half cocked on any idea that presents itself to you and waste a lot of energy in useless tasks.

One worth-while work is to solidify the trade interests of your city. Let there be meetings of all the dealers. Take a census and learn what your resources are—how many cars, how many drivers, how many mechanics, how many truck experts, how many trucks and their capacities, how many shops and what equipment, how much gasoline and the prospect for more. Find out what your resources are.

Then name a committee to consult with the proper authorities. Learn if there is any way the trade in

your city or territory can assist. First find out what resources you have on hand and then get in touch with the proper authorities.

If the authorities anticipate an emergency movement of troops and may need quick transport, get organized for that service; organize yourselves so that you can mobilize your resources quickly.

Learn whether there is any part you can play in the industrial and agricultural work that must be done. These parts of the plan are the foundation of the war work, for without industrial and agricultural support armies and navies cannot operate.

And perhaps the authorities will tell you it is advisable to have military training classes. If so, co-operate in this work.

Investigate the war bond issue. See whether you can assist in this part of the plan.

Hang out a flag—several of them.

Run a patriotic line in your advertisements.

Do all you can to impress upon the public that America is in the greatest war the world has ever seen and that the people must do a gigantic work.

It has been proposed that a patriotic parade be held April 19, the anniversary of the battle of Lexington. MOTOR WORLD will not reach all its readers in time for the execution of this idea, but there is no reason why the motor trade of every city cannot organize a demonstration of this kind on any other date.

There are countless ways in which we all can—and must—serve. It is up to every man to do his bit.

Two Birds

OWNERS, as a rule, are poor economizers. They need instruction on how to cut down the waste of fuel and the wear on tires. No one is better able to give such instruction than the dealer and the garageman.

If every dealer and garageman would see to it that carbureters are properly adjusted, that brakes don't hang, that the running gear is properly lubricated, the immediate result would be greater mileage per gallon of fuel.

Similarly, if owners were given instruction regarding the care of their tires, there would be less tire trouble and greater tire mileage. Such instruction should include advice covering proper inflation; the need of quickly caring for small cuts in the tread; the avoidance of car tracks, pot holes in roads, broken stone, etc.

The dealer and garageman can logically give this advice to the motorist because in doing so they will be working for the motorist's

interest. Incidentally, they will be working for their own interest because the owner likes to know that the garageman thinks of his customers once in a while.

Attending to these things for the motorist pleases him and saves money for him. These jobs bring work to the garageman and mean the sale of labor, oils, greases and accessories.

Here is a place where the garageman and the dealer can kill two birds with one stone.

Inefficient Shortcut

Editor Motor World: We notice in the March 28 issue Shortcut No. 1116 describes home-made air compressors.

Now, this undoubtedly pumps air, but we would call it anything but a shortcut and, after noting the following, we believe that you will coincide with our idea.

1—In the first place, Mr. Porter states that he pumps to 158 lb. pressure. Now, with an air cooled compressor pumping to this pressure means generating a heat of 603 deg. Fahr. We note that the wood block in the head is held in place by leading it in. The melting point of lead is from 608 to 618 deg. Fahr., so you will see that at 158 lb. the temperature is such that the lead would be about ready to melt and flow. This condition might result very seriously if the lead were to flow out into the cylinder and around the piston or between the piston and the wood block.

2—The wood block will in time absorb oil and become saturated so that oil will be delivered over into the discharge line when the block can absorb no more of it. Furthermore, when the block does get saturated with oil and also with the moisture, it is going to swell up and decrease the clearance, possibly to such a point where the piston head will bump it, with, of course, disastrous results for the air compressor.

3—He states that this compressor with a bore of $3\frac{1}{2}$ and a stroke of 3%, running at a speed of 225 r.p.m. requires 25 min. to fill a 16 x 48 tank to 158 lb. pressure. This compressor has a displacement of approximately 5.2 cu. ft. per minute and ought to fill a tank 16 x 48 to 158 lb. pressure in $11\frac{1}{4}$ min. instead of 25. You will see, therefore, that he has anything but an efficient compressor.

4—The discharge valve is on the outside of the compressor, which means a great deal of waste clearance in the discharge valve passages, which probably accounts for much of the inefficiency of the compressor.

Danger of Fire

5—On account of the heat generated by pumping to pressures as high as 158 lb. and on account of the makeshift oiling system, not designed for air compressor service and on account of the oil-absorbing wood block in the head there is a possibility of generating sufficient heat to ignite the oil vapor, especially if a low flash point oil is used which can only result in exploding the oil-laden air in the air tank with disastrous results and perhaps fatal ones.

We might also add that a compressor of this capacity and one properly designed for air compressor service eliminating all of the above dangers and inefficiencies could have been bought for approximately \$35.

Our advice to Mr. Porter is to put in a real air compressor in the interests of efficiency and to safeguard himself, his equipment and his employees from accidents which are bound to come sooner or later with a makeshift of this kind.

We believe that giving publicity to the

Letters From MOTOR WORLD Readers

above facts will probably deter other garage men from falsely economizing as Mr. Porter has.—Curtis Pneumatic Mch. Co., L. C. Blake, St. Louis.

Best Plan Evolved

Editor Motor World: Your plan, so far as I can see, is the best one that has been evolved to inform dealers and garagemen as to used car prices, at stated times in certain specified localities. There are too many dealers who are uninformed as to used car prices.

I am glad to see MOTOR WORLD again the pioneer in teaching dealers something which they should know, but in most cases do not know, as lack of knowledge costs money.

The value of your plan to the individuals who composed this association would be in proportion to the amount of thought and attention they give to your record.—Geo. F. Kaiser, Secy., United Garage Associations, New York.

A Wonderful Help

Editor Motor World—The idea as suggested to be carried out by MOTOR WORLD, relative to compiling information on Used Car Price Records, will be a wonderful help to the automobile fraternity, both from the branch-dealer's and sub-agent's point of view, and will undoubtedly help to clear the mind of the purchaser when

he desires to trade his old car for a new one. I think your paper should be congratulated upon this move, and if there is anything I can do to lend my assistance in this line I should be only too glad to do so.—Chevrolet Motor Co. of N. E., Inc., Worcester Branch, W. A. Sellon, manager.

More Than Successful

Editor Motor World: With reference to your contemplated list of Used Car Prices, would say that I can assure you that this will be of great value to automobile dealers at large and should prove more than successful, as it is a problem that, I am sure, all the dealers throughout the country are interested in.—The Bemb-Robinson Company, Walter J. Bemb, president, Detroit.

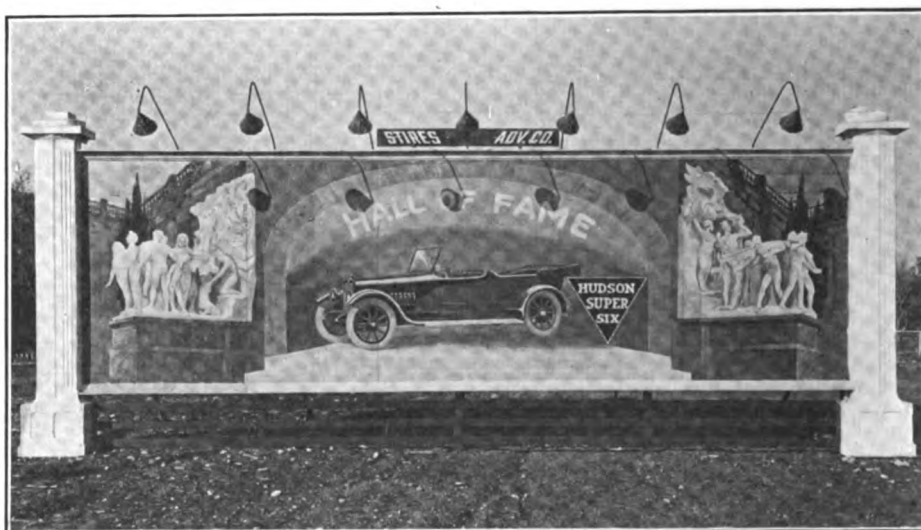
U. S. Wants Big Cars?

MILWAUKEE, WIS., April 14—A story comes from Antigo, Wis., that W. Heck & Son, proprietor of the Service Motor Car Co., of that city, and Buick dealer, has received a telephonic request from H. O. Pence, Buick distributor, to obtain possession of all seven-passenger Buicks available. The Hecks were informed that the government is buying all of the large cars it can obtain for war purposes and transportation of troops and supplies.

Two New Iowa Associations

DAVENPORT, April 14—Scott County, Iowa, is going to have a retail automobile dealers' association. About 30 of the 55 dealers were present at a meeting held recently at the Commercial Club, to discuss the need of such an organization. It was decided to form the organization, and the final arrangements will be made at a meeting to be held soon. The new organization has no relation to the Rock Island association.

Real Art in a Dealer's Signboard



THE Crooket Automobile Co., San Antonio, Texas, has this board erected. It is 35 feet long and 10 feet high. The art work is painted. The sign, exclusive of the painting, cost \$15 to erect and stands on ground leased at \$5 a month. The cost of illumination is \$3.50 a month.

The RETAIL NEWS

EAST

The White Co. of Philadelphia, in order to establish a Wilmington branch, with sales and service departments, has acquired the Tourist Garage & Repair Co.'s plant at Delaware Avenue and Adams Street, comprising a large two-story building a block long.

The Packard Motor Car Co. of Philadelphia has established a Wilmington branch at 219 West Ninth Street.

The Marmaduke Motor Co., Wilmington, Del., which is handling the Maxwell, has located at Eleventh and West Streets.

The Gomery-Schwartz Co., local agents for the Hudson and Ford, has taken up commodious quarters at 1205 Chippey Street, Wilmington, which was recently vacated by the Atkinson Automobile Co., the latter having acquired William B. Austin's Garage at Pennsylvania Avenue and Clayton Street.

The Delaware Motor Sales Co., Wilmington, distributor of the Cadillac, has taken possession of its new building at Eleventh and King Streets.

The Sweeten-Wilmington Co., Wilmington, distributor of the Franklin and Hupmobile for Delaware, having vacated the Tourist Garage at Delaware Avenue and Adams Street, has taken possession of new quarters at 1011 Orange Street.

The H. S. Waite Co., Boston, Grant dealer, has moved into new salesrooms on Beacon Street.

The Scripps-Booth Agency, Boston, has been taken over by E. A. and Miss Marie Robbins. He formerly handled the Isotta Fraschini in New York.

The Bolce-Perrine Co., Boston, accessory dealer, has moved its mechanical station into a large building on Beacon Street. The company is having a new structure erected.

The Brandford Auto Co., New Haven, has taken over the building at 400 Crown Street for a general service station and used-car department.

The Malco Rubber Co., Boston, has just been formed to handle tires and tubes of that make.

John V. Wilson, Boston, is forming a company to handle the Make-A-Motor Truck.

The Quick Tire Service Co. will erect a \$14,000 two-story brick and concrete service station at Third and Kentucky Streets, Louisville. The lower floor of the building will be used as a garage and the upper story as a rack room for automobile tires. The building will be fireproof.

The Steel City Truck Co., Highland Building, Pittsburgh, has secured selling rights for the Bethlehem Truck in Pittsburgh territory.

The Eddie Bald Motor Car Co., Pittsburgh, has a new service building with salesroom in course of erection. The structure fronts 50 ft. on Baum Boulevard, and will be three stories with basement.

The Double Life Storage Battery and Service Co. has been appointed distributor for the Vesta storage battery in Pittsburgh territory. It has opened a service station at Station Street and Sheridan Avenue.

P. L. Bartley, 5968 Baum Boulevard, Pittsburgh, has been appointed distributor by the Connecticut Telephone & Electric Co., Meriden, Conn. This company is arranging for service stations throughout the country.

The Packard Co. of Pittsburgh now occupies a new home on Baum Boulevard. The

new building represents an investment of over one-half million dollars, and contains approximately 100,000 sq. ft. of floor space.

McAlister Bros., Cadillac dealers in Pittsburgh, will soon occupy a new sales and service building on Baum Boulevard.

The National Pittsburgh Co. has rented the building owned and now occupied by McAlister Bros. at Baum Boulevard and Beatty Street, and expects to take possession about May 1.

The Pittsburgh Motor Service Corp., First Avenue and West Street, Pittsburgh, has been appointed distributor for Chase trucks. It also has the agency for Rush trucks.

The Martin-Whitehill Co., Pittsburgh, is building a service station and salesroom on Center Avenue, near Euclid Avenue. The new building will be ready for occupancy about May 1.

The Iron City Motors Co., Walnut Street, near Alken Avenue, Pittsburgh, Pa., has been appointed Hupmobile distributor.

H. E. Listman Co., Albany, N. Y., has just opened a new salesroom in the Babbitt Building on Broadway. Republic trucks are sold.

SOUTH

The Dublin Auto Co., Savannah, Ga., of which L. B. Williams will be manager, will open for business within a very short while. Williams has just returned from Atlanta, where he closed a contract with the Studebaker Corp. for the sale of the Studebaker cars and trucks in the counties of Laurens, Johnson, Bleckly and Dodge. Williams will sever his connection with the Robinson Hardware Co., with whom he has been connected for the past 9 years, and will devote his entire time to the new enterprise. A stock of parts as well as cars will be carried, and a Studebaker service station maintained.

MIDDLE WEST

The Rice Lake (Wis.) Motor Car Co. has disposed of its repairshop business and equipment to John McFarland, formerly of Milwaukee, who has incorporated the business under the name of John McFarland Co., with a capital stock of \$5,000. A. C. Loose, Walter J. Bliffert and W. H. McCarthy are associated with him.

The Dayton Garage, Monticello, Wis., has been purchased from Dooley & Richardson by Marx Disch, who took possession April 1.

F. D. Foley, 1011 Wells Building, Milwaukee, will build a salesroom, with small garage and repairshop, on Cass, near Wisconsin Street. It will cost \$7,500 and will be 30 x 75 ft.

The Sande & Abendschein Auto & Implement Co., Neenah, Wis., has moved from the Sorenson Building, Wisconsin Avenue and Church Street, to its new garage and repairshop on North Church Street, erected at a cost of nearly \$10,000.

A. D. Mather, Monroe, Wis., has disposed of his interest in the Mather-Buehler-Barmore Garage in that city and will re-establish a business of his own, making a specialty of tire repairs.

The B. C. Wolter Garage, Appleton, Wis., is being reconstructed and provision made for a 100 per cent increase in the capacity of the repairshop.

The Velle Motor Car Co., 309-311 Fourth Street, Milwaukee, State distributor of the Velle, is contemplating the erection of a two-story fireproof garage, service station and sales building, costing \$20,000. C. E. Power is manager.

Clarence Hackbert, Poynette, Wis., has purchased an interest in the Gundlach Garage, Arlington, Columbia County, Wis., and the firm name has been changed to Gundlach & Hackbert.

W. L. Utley, Delavan, Wis., is making arrangements to build a new fireproof garage and repairshop adjacent to the present building.

The Barker Auto Co., Chippewa Falls, Wis., is enlarging its garage and salesroom building by the addition of another story.

Ripsey & Loos, Hartford, Wis., proprietors of the Ideal Service Station, have broken ground for a new garage and repairshop, to be 80 x 100 ft., and ready for occupancy June 1.

The Black Auto Co., Sheboygan, Wis., has awarded contracts for the reconstruction of its garage on North Eighth Street into a fireproof structure along modern lines. The building also will be enlarged by a 30 x 30-ft. addition.

The South Side Service Station Co., Milwaukee, has increased its capital stock from \$2,000 to \$5,000.

Fred Ragan, Grand Rapids, Wis., Oakland and Reo dealer, is establishing a garage and service station on First Street, North.

Henry Behrens, Peshtigo, Wis., has broken ground for a one-story concrete garage and repairshop, 48 x 100 ft., on Main Street.

The North-Western Motor Car Co., 1071 Twenty-ninth Street, Milwaukee, Ford dealer, has engaged Herbst & Hufschmidt, architects, to prepare plans for a two-story garage and service building, 130 x 188 ft., at West Twenty-fourth Street and North Avenue, Milwaukee. It will be of reinforced concrete and brick and contain a large machineshop installation.

M. L. Popp, 41 Thirty-fourth Street, Milwaukee, is building an exclusive motor car repairshop, 40 x 90 ft., costing \$5,000, at 1344 National Avenue.

The Saxon Motor Sales Co., Fond du Lac, Wis., has been formed by W. W. Fradenburg and W. G. Chapleau to deal in Saxon cars and operate a garage and repairshop at 212-214 South Main Street in that city.

Bert Harper & George Heyer, Tomah, Wis., have formed a co-partnership to engage in the garage and repairshop business.

The Olson & Pauly Auto Co., 441 Jackson Street, Milwaukee, has broken ground for a two-story garage and service building, 60 x 120 ft., on Marshall, near Wisconsin Street. The company is State distributor of the Ross.

Oscar Broberg, Atlas, Polk County, Wis., will build a small garage and repairshop costing \$4,000.

The Tiffany Motor Car Co., Chetek, Wis., Overland dealer, took possession of its new garage and service building on April 2.

The Badger Sales Co., New London, Wis., has been appointed dealer in Reo passenger and commercial cars for New London and vicinity.

The Boerner Automobile Co., Cedarburg, Wis., has been appointed Maxwell dealer.

Charles O'Lone & W. G. Henrichs, Monroe, Mich., have opened a garage and repairshop.

The Michigan Auto Co., Houton, Mich., will erect a one-story fireproof garage and repairshop.

James Cogleys Sons, Yale, Mich., agents for Yale and Ford, have taken over the Yale Garage and will operate it as a Ford service station and general garage.

The Leonard B. Oloff Co., Detroit, has opened a salesroom for the Mitchell.

Roy Ford, Peoria, Ill., has taken over the agency for the King and the Hal Twelve in Peoria and vicinity. Salesroom and garage will be opened soon in the business district.

O. H. Bartholomew, Peoria, Ill., formerly in charge of the vulcanizing department of the Dual Tread Tire Co., has embarked in business on his own account under the style Central Auto Supply Co. He is located at 617 Main Street.

Paul J. Killen of Galesburg and E. R. Eek of Peoria have opened a local branch of the Dearborn Truck Sales Co. at 100 Knoxville Avenue, Peoria.

L. J. Malone, Galesburg, Ill., has opened a garage and sales agency at 58-62 Boones Avenue. He will be distributor for the Chevrolet in Knox and adjacent counties and will also handle a line of supplies and accessories and maintain a repair department and service station.

The Acme Garage, Springfield, Ill., was opened last week by John McKee and Paul Zumbrook at 416-418 South Sixth Street. A line of accessories and supplies will be carried and a storage and repair business will be operated. A portion of the new plant will be occupied by Nicholas Ridgely, distributor for the Liberty in Sangamon County.

Leo Hayes and William Jungjohann, Decatur, Ill., have formed a partnership and will operate a garage at 205 East William Street. They will specialize in electrical work and their plant will be known as the Electric Service Station.

The Joliet (Ill.) Motor Co. will open a new garage, corner of Michigan and Jefferson Streets, about May 1. The plant will be 132 x 75 ft., two stories with basement. Special conveniences for employees, such as shower baths, will be provided. The salesroom and offices will be on the first floor and the accessory and repair department on the second floor. The building, while as near fireproof as possible, will be protected by automatic sprinklers.

William Kelly, Pekin, Ill., for many years proprietor of a livery barn, has found his occupation gone and is remodeling the structure into a garage. He will cater to storage and repair business only.

Todd & Tuggle, Clinton, Ill., have opened a new garage at 216-24 North Quincy Street. The plant will be 66 x 100 ft. and will be fireproof. A repair and storage business will be conducted and a line of supplies carried.

Frank S. Doremus, connected with Cussins & Fearn Co., Columbus, Ohio, for the past 9 years, as secretary and manager and buyer of the automobile accessory department, has opened the Doremus Tire & Supply Store, 189 East Long Street. Federal and Falls tires will be sold.

SOUTHWEST

Lemon & Rutter, Arkansas City, Kan., have opened a garage and repairshop.

The Harley & Lewis Garage, Belleville, Kan., will be opened soon.

F. G. Simpson, Culver, Kan., is building a garage.

The Marton Bros., Denison, Kan., have charge of the workshop in the Denison Garage.

C. E. Radcliff, Dexter, Kan., is building a garage.

The Cochran Motor Co., Emporia, Kan., Dodge dealer, will occupy the new garage being built by Burnap Brothers.

P. Y. Thurber, Fowler, Kan., will erect a brick and tile garage, 50 x 140 ft.

Peters & Cobb, Ford, Kan., are building a 50 x 100-ft. garage.

Judson Stoop, Garden City, Kan., has moved his Willard battery shop to East Chestnut Street in the building used by the Garden City Tire Co.

The Phillips Garage, Greensburg, Kan., is ready for business.

The Vance Motor Co., Garden City, Kan., has rented the building on Grant Street recently vacated by M. O. Willey.

Nate Fumer, Garden City, Kan., Oldsmobile dealer, has purchased the Fred Pyle building and is remodeling it for salesroom and office.

Moore Bros., Hutchinson, Kan., have opened a branch at 23 Sherman Street.

Frank Sutton, Hutchinson, Kan., Cole dealer, will open part of a building at 15 First Avenue as a salesroom in addition to his garage.

R. C. Stalcup, Holton, Kan., has opened a repairshop.

I. H. Pilcher, Hartford, Kan., purchased the Hartford Garage from Gilkey & Sleyer. Krause & Billbe, Iola, Kan., are erecting a new garage.

Larned Auto Tire & Supply Co., Larned, Kan., which was recently destroyed by fire, is being rebuilt. It will be brick and cement.

S. H. Long, Lincoln, Kan., Maxwell dealer, has moved into his new garage.

Bruce Fleming, Norton, Kan., is erecting a garage.

Bert Alley, Needesha, Kan., Ford dealer, has moved from Goodson Bros.' room to the big double storeroom in the north side, giving him a floor space of 50 x 100 ft.

The Ottawa Motor Sales Co., Ottawa, Kan., of which S. B. Weldner is manager, will move soon to new quarters in the Shaner Building.

F. A. Rice, Potwin, Kan., will erect a garage at once to cost \$3,000.

Hudelson & Kaserman, Powhattan, Kan., are erecting a garage.

J. W. Hahn, Salina, Kan., Buick dealer, will erect a garage.

Duesing Garage, Spearville, Kan., Buick and Overland dealer, is enlarging his garage by half.

G. A. Evans, Advance, Mo., Ford dealer, may open a garage.

Chas. Hacker, Bethany, Mo., Ford and Buick dealer, will occupy the Edson Garage.

Berkshire-Walters, Caruthersville, Mo., will occupy the new garage building being erected there.

The Alcott-Morman Auto Co., Carrollton, Mo., will open soon. It is a branch of the Chillicothe firm.

E. G. Thompson, Cameron, Mo., has bought the repairshop of B. C. Bennett.

Otto Hahn, Dexter, Mo., is building a 50 x 30-ft. concrete garage.

Elco Belshe, Eldon, Mo., will open a garage soon.

C. D. McLees, Farnfelt, Mo., has bought Elston & Snell's Garage.

Arthur Seuders, Gerald, Mo., is building a brick 30 x 50-ft. garage.

Charley Lilly, Jasper, Mo., has taken an interest in the Joe Rice Garage.

T. J. Hancock, Miami, Mo., is building a new garage.

Marlow & Peters, Montgomery City, Mo., have opened the Montgomery County Garage.

The Southeastern Auto Supply Co., Austin, Tex., has been opened at 105 West Fifth Street by M. Jacobs of Chicago and L. C. Powell of Montana. The company will handle tires and accessories and will be distributors for Amelie motor oil.

J. L. Pidgeon & M. E. Smiley, Colorado, Tex., have acquired the Paramount Garage.

The Clarendon Motor Co., Clarendon, Tex., Ford dealer, will occupy a new brick garage. Sidney Reinhardt, Dallas, Tex., is building a \$11,400 garage and filling station.

J. N. Gallistie, Harmleigh, Tex., will erect a concrete 50 x 80-ft. garage.

McCarty Garage, Haskell, Tex., is to be erected here. It will be 60 x 142 ft.

G. G. Hiatt, Laredo, Tex., Dodge dealer, purchased the Citizens Auto Co.

Greer Orton, Nacogdoches, Tex., has sold his interest in the Nacogdoches Garage.

Cope & Craddock, Seymour, Tex., are building a garage.

E. L. Holloway & Son, Alva, Okla., are building a garage.

Munson & McNeely, Alva, Okla., Dodge dealers, are building a garage.

Be Saw Tire & Rubber Co., Ardmore, Okla., may locate a branch here.

Claude Glasscock, Caddo, Okla., has bought the Boyle Garage.

W. R. Prince, Guthrie, Okla., Maxwell dealer, is enlarging his quarters.

Bert Leftwich, Holdenville, Okla., has purchased the City Garage from I. G. Berry.

William Boyer, Norman, Okla., is building a 50 x 140-ft. garage.

Joe Ferguson, Pawhuska, Okla., has bought the Auto Supply Co. from H. C. Boutin and Ben Frohock.

Ford L. Marks, Waurika, Okla., will build a vulcanizing plant.

NORTHWEST

Howard Habbegger, Mapleton, Minn., is building a garage.

Herman Dehnell, Bertha, Minn., will erect a garage.

C. A. Polson, Millville, Minn., will erect a garage of brick and concrete, 50 x 80.

Thies & Fisk, Fort Benton, Mont., will erect a garage.

John Dragert, Lewisville, Minn., has bought the Lewisville garage business.

N. Serenson, Lyle, Minn., has bought an interest in the Thompson garage.

Bakken & Backlund, Litchfield, Minn., will open a tire repair shop.

P. J. Pint, Sanborn, Minn., sold his garage and equipment to Dittlenner Bros., New Ulm, Minn.

Kretch Auto Co., New Ulm, Minn., is turning the opera house into a garage.

Alex Stark, St. James, Minn., has bought an interest in the Dettwiler garage.

The Lans Garage, Wabasha, Minn., Main and Alleghany Streets, has been sold to F. E. Ebner from Waukon, Iowa.

Sam Katz, Chisholm, Minn., has opened a tire repairshop at 110 East Lake Street.

Maurice Olson, Max, N. D., will erect a garage, brick and tile, 50 x 100.

N. P. Hansen & Son, Willow City, N. D., will build a garage.

Rolfe & Parsons, Mussellshell, Mont., will build a garage on Main Street.

Charles Jesmore, Eveleth, Minn., will erect a garage on Grant Avenue, 51 x 115.

C. G. Clemmer, Marion, S. D., has closed the Marion garage and opened a repairshop.

Thorstenson Bros., Plentywood, Mont., have leased the Fishbeck garage and will operate it in connection with Motor Inn.

Wright & Munson, Dooley, Mont., have opened a garage.

Byers Bros., Voltaire, N. D., have erected a garage.

The Redmen Garage, Upham, N. D., has been bought by W. E. Black and G. W. Randall of Bantry, N. D.

Erick Beckman, Thief River Falls, Minn., will build a garage.

Northern Minnesota Trading Co., New York Mills, Minn., has begun work on a large garage.

L. C. Palas, Watonnan, Minn., will build a garage, 40 x 70.

Stless-Olson Tire Co., Minneapolis, has opened on Hennepin Avenue to sell Kelly-Springfield tires in Hennepin County and Minneapolis. Both members are from the Kelly-Springfield branch. C. W. Stless was a member of the Roger-Stless Co. that preceded the factory branch up to last fall, and A. O. Olson was also with the company.

O. H. Werpy, Minnesota, Minn., has left Gelwitz & Son to handle the Overland.

Larson & Gaarden, Ellsworth, Minn., have bought the East Ellsworth Garage from Charles Struve of Oak Grove.

The Zeeland Garage, Zeeland, N. D., burned, with loss of \$7,500. Fire started in the battery room in absence of employees.

Albert Hopfe, Austin, Minn., has taken a half interest with his brother, E. D. Hopfe, in the Motor Inn Garage.

Wilson Garage, Hastings, Minn., is a brick and tile building under erection on Sibley Street.

L. W. Stacy, Miles City, Mont., will build garage, 115 x 125 ft.

Fred Pound, Taylor, N. D., will build a garage in the spring.

Adolphson & Potter, Springfield, Minn., will build a garage, 49 x 125 ft.

M. H. Johnson, Montpelier, N. D., has bought a half interest in the Ben Gilbertson Garage.

John Miller and Paul Peterson, Miller, S. D., have gone into the garage business.

Otto Bloemke, Springfield, Minn., will open a vulcanizing plant.

Frank McCleary, Red Lodge, Mont., has rented the Pollard Garage for his Overland and Ford agencies and service.

W. R. Remshard, Red Wing, Minn., and C. A. Rehder from Cannon Falls, Minn., will open the Overland Garage on Fifth Street. Remshard has been with the Pioneer Garage.

The General Motor Sales Co., Grand Forks, N. D., Paterson, Cole and Oldsmobile distributor, has been incorporated under North Dakota for \$50,000 by Carter H. Murphy, Earl McFadden and W. F. Davey.

The New Prague Fdry. Co., New Prague, Minn., will build a garage, 40 x 108 ft.

W. H. Fawky, Virginia, Minn., will build a garage.

Arthur Lovdahl, Crosby, Minn., will build a garage.

Joseph Keyes & C. C. Schweitzer, Fargo, N. D., will reopen the Comstock garage.

H. O. Batzer, Hazelton, N. D., who bought the Ellithrop & Ames garage, sold it to Bolen Bros., Bagley, Minn.

The Brooks Garage, Roundup, Mont., will add a second story.

Will Hanson, New York Mills, Minn., will open a repairshop and general service station.

Thomas Grogan, Lake City, Minn., will open a salesroom at Center and Washington Streets.

H. L. Nelson, Forman, N. D., has reopened the Forman garage.

Seward Peterson, Wales, N. D., has opened a garage.

W. L. Oltman, Ellsworth, Minn., will build a garage.

Brekkestran Bros., Holt, Minn., are building a garage.

O. M. Vinge, Clyde Park, Mont., has bought the C. E. Chapel interest in the Clyde Park garage.

Gem City Motor Co., Sidney, Mont., is building a garage addition, 40 x 50.

John Knudson, Taylor, N. D., will build a garage, 42 x 72.

J. E. Calhoun, Interior, S. D., will build a garage, 48 x 58.

Lewis Levang, Ulen, Minn., will open a garage.

B. F. Mowry, Springfield, Minn., has sold his garage to E. H. Adolphson and Wayne Potter.

N. E. Blood, Dickinson, N. D., will buy the H. F. Ufer interest in Ufer & Foster garage.

Loranger & Gray, Havre, Mont., will build a garage at First Street and Fifth Avenue.

The Peerless Tire Co., St. Paul, Orson B. Powers in charge, has joined the automobile row by opening quarters at 177 West Sixth Street. The company will handle the Dayton pneumatic, Dayton airless, "Tra Pli" and Peerless tires.

S. R. Key, Gregory, S. D., has taken over the Maxwell agency from the Krotter Co.

Regent Grain Co., New England, N. D., will erect a garage, 50 x 100, to cost \$6000.

Isaac Hegge, Hatton, N. D., sold his interest in the Hatton City garage to Ostile & Son.

L. M. Howell, Hettinger, N. D., will open a garage and automobile business.

Elvind Tandberg, Noonan, N. D., has taken over the Overland agency from William Nordman & Co.

N. S. Peterson, Dell Rapids, S. D., has bought the interest of his partners, A. W. and H. R. Mohrman, in the Dell Rapids Auto & Supply Co.

Peter Schekel, Lake Andes, S. D., sold his interest in the Lakeside Auto Co. to his son, Louis Schekel.

Edwin Lee, Estelline, S. D., bought the interest of his partner, A. G. Koppman, in the Motor Inn garage.

G. E. Nelson, Brook Park, Minn., sold his interest in the Brook Park garage to Axel Laursen of Minneapolis.

Roy Bergman, Drummond, Mont., has taken over the garage formerly owned by C. J. Pine and will conduct it as the Bergman Auto & Repairshop.

Battleson & Co., Scobey, Mont., bought the interests of the Scobey Motor & Machine Co.

Hullick & Co., Fargo, N. D., have opened an Oakland salesroom at 311 Northern Pacific Avenue.

Morgan & Peters, Truman, Minn., will build an addition to their garage to cost \$3500.

James Lewis, Drummond, Mont., will build a brick garage, 50 x 150, to cost \$8000.

Philip Blank, New Salem, N. D., will build a garage to cost \$15,000.

The Zeeland Auto Co. garage, Zeeland, N. D., burned at a loss of \$7500.

Green & Konold, Clear Lake, S. D., will erect a garage addition, 20 x 75.

C. W. Lee, formerly with the Firestone branch at Minneapolis, has joined John Coats in taking over the management of the Northwestern Motor Supply Co., Sixth and Exchange Streets, and will handle the Kelly-Springfield tires exclusively.

Dodge Center Improvement Co., Dodge Center, Minn., will erect a garage, 66 x 100.

Rice & Binge, Clyde Park, Mont., will build a \$15,000 garage, 50 x 145.

Klefer Auto Co., Fargo, N. D., will enlarge its building and erect a two-story garage on 25 ft. of land adjoining.

Commercial Holding Co., Minneapolis, will erect public garage, 54 x 135, concrete blocks and brick, 810 West Lake Street.

Lars Ingeberg and John Hendrickson, Perth, N. D., have formed a partnership and will build a garage, 44 x 60.

Lee Howell, Hettinger, N. D., has bought the Henry Olson repairshop.

Carl Whitaker, Broadland, S. D., is building a garage and blacksmith shop.

Dilner & Holbrook, Mankato, Minn., have built a garage on South Second Street, 55 x 150.

Hardy & Hagstrom, Lowry, Minn., are enlarging their garage.

Larson Auto Co., Garretson, S. D., is completing its garage.

Clarence Robinson, Grand Meadow, Minn., bought Eugene Atkins' interest in Atkins-Robinson Motor Co.

Dillon Tire & Rubber Co., Dillon, Mont., has opened for business.

L. N. Redfield, Parker, S. D., has opened a garage.

Forstner Garage, Madelia, Minn., will erect a brick building, 66 x 140.

N. C. Smith & Son, Sanish, N. D., are erecting a garage, 366 x 36.

Ebner's Garage, Wadena, Minn., has let the contract for an addition.

Paul Sander, Owatonna, Minn., has opened a garage at Bridge Street and Broadway.

Erickson Bros., St. Hilaire, Minn., bought the G. Fellman garage.

Joseph Stevenson, Scotland, S. D., will build a garage.

Frank Kretsch of Kretsch Auto Co., New Ulm, Minn., bought the Opera House, N. First Street and Broadway, and will remodel it into a garage.

E. A. Adams, Glasgow, Mont., has been appointed manager of the Grossman Motor Co.'s repairshop.

Earl Hanson, Brady, Mont., has bought the Brady garage from James Gray.

Prentice Auto Co., Great Falls, Mont., will build a garage.

MOUNTAIN

George H. Estabrook, Denver, Briscoe and Hollier and McGraw tire distributor for Colorado, Wyoming and New Mexico, has moved from 1646 Broadway into larger quarters at 1700 Broadway.

The Tibbals-Anderson Motor Co., 1188 Broadway, Denver, Elcar and Jackson distributor for Colorado, Wyoming and New Mexico, has given up the Jackson and now handles the Elcar.

The Woods-Premier Motor Co., Denver, Premier distributor, has quit business.

The Denver Rubber Tire Works Co., Denver, Firestone tire distributor for Colorado, has moved from 1569 Broadway to larger quarters at 1554-1556 Broadway.

E. J. Johnson, Denver, Chalmers distributor for Colorado, Wyoming and New Mexico, has secured the Premier distributing agency for the same territory.

The Mountain Motors Co., Denver, a new \$50,000 concern, has secured the Packard distributing agency for Colorado, Wyoming and New Mexico, except six Colorado counties, under special contract. The new firm is located at 25 East Colfax Avenue, and Bert Williams is general manager.

George McKimmie, Elbert, Col., has made a 15 x 16-ft. addition to his garage and filling station and put in a stock of supplies.

F. P. Van Sickle, Denver, Aurora demountable truck distributor for Colorado, Wyoming, Utah and New Mexico, has moved from 1608 Broadway to a new building at 1669 Broadway.

The Mulnix & Rarie Auto Sales Co., 35 East Colfax Avenue, Denver, Pathfinder and Grant distributor for Colorado, Wyoming and New Mexico, has given up the Grant and is handling the Pathfinder only.

The Carter Motor Co., Denver, King and Saxon distributor for Colorado, Wyoming and New Mexico, has added the Dort distributing agency for the same territory.

The Moock Motor Sales Co., Denver, is a new \$25,000 concern distributing the Mercer and the Woods Dual Power for Colorado, Wyoming and New Mexico, formerly handled by Harry G. Moock, manager and one of the incorporators of the new firm. The salesroom is at 221 Sixteenth Street.

COAST

Borkman & Wagner have secured the Everready agency and will operate a service station at 2509 Broadway, Oakland.

Fred A. Wood, Jules Zbinden and Itay Zbinden, Seattle, have organized a company to distribute the Auburn in Washington and Oregon, with headquarters at 1720-22 Broadway.

Mack Brothers, Tacoma, have leased the new Gourley Building at 945 Market Street, where the Pierce county agency for the Argo will be located.

Sam Dubendorf, Castle Rock, Wash., has leased the Castle Rock garage.

H. L. Johnson, Tacoma, has opened a garage and repairshop at 805-7 Pacific Avenue. A complete line of oil and supplies and accessories will be carried.

Earl F. Weeks, Tacoma, has been appointed Peerless dealer for Pierce and Thurston counties. Headquarters have been opened at the Electric Garage, 210 North 1 Street.

Volz & Nagle, Colfax, Wash., distributor for Chalmers, will construct a garage on Main and Rock Streets, 50 x 100 ft., covered with corrugated iron. Building will be one story and basement. The upper floor will be used for offices in front, storage room in center and machine shop in rear. Paint shop and storage room will be in the basement.

Hinman & Lamb, Toppenish, Wash., Saxon distributors, have dissolved partnership, and Lamb, with his son, Lester, will continue to handle the Saxon and Franklin.

Baker Overland Co., Baker, Ore., Overland distributor, has taken new quarters in the Armory Building, Fourth and Center Streets, which has been remodeled and refitted.

Frederick B. Huffman, Spokane, formerly in the fuel business, has purchased an interest in the Brewer Motor Car Co., Saxon agent, and joined the company as secretary.

P. E. Chamberlain, Denver, is now Premier district representative for E. J. Johnson, Premier and Chalmers distributor for Colorado, Wyoming and New Mexico. He was formerly secretary and general manager of the Chamberlain-Woods Motor Sales Co. and is well known throughout the Rocky Mountain territory. He was president of the Automobile Trades Association of Colorado last year.

W. P. Hensley, Denver, is now Studebaker road salesman for the Automobile Sales Corp., Studebaker and Franklin distributor for Colorado, New Mexico and Wyoming. He has been connected with the motor car business in the Rocky Mountain district three years, and was formerly in the same line at Calumet, Mich. His latest connection was Saxon salesman for the Carter Motor Co.

Edward J. Best, Denver, formerly Saxon outside State agent for the Carter Motor Co., is now general manager of the Burwood Laboratories, a new electrical engineering concern. Testing, designing and manufacturing motor car equipment will be part of the new business.

P. H. Genter, Denver, is a member of the new firm of Adams & Genter Co., Ogden and Logan, Utah, State distributor for Delco lighting plants and general appliances. He was formerly city salesman for the Continental Oil Co. and had charge of a chain of filling stations.

Roy Corbett & Glenn Walker, Seattle, have opened a distributing and service station in the automobile row for the Miller carburetor.

R. C. Finch & G. L. Merklin, Spokane, will occupy a new brick and terra cotta garage constructed at a cost of \$10,000 on Second and Howard Streets. A repair department will be conducted.

W. A. Clark, Baker, Ore., has opened a tire shop at corner of Fourth and Center Streets, in connection with the Baker Overland Garage.

Yakima Auto & Supply Co., Toppenish, Wash., recently purchased one-story brick building on West First Avenue, and will remodel it into a garage, supply station and salesroom.

Herbert Sieler, Spokane, Case and Allen dealer, an attorney, has purchased an interest with his brother in the Sieler Auto Co.

Hendricks Sales Co., Seattle, Hendricks truck dealer, recently opened showrooms at 1123 Pike Street under management of F. U. Bliss of Spokane. Bliss is succeeded in Spokane by F. A. Williams.

Corvallis-Overland Co., Corvallis, Ore., is building a garage, 10 x 100 ft., and service station.

Kitley & Scott, Spokane, Wash., operating the Model Garage, will move to a brick and concrete garage at Second and Washington Streets, costing \$10,000.

Auto Tire & Supply Co., Seattle, has enlarged its quarters by leasing the store adjoining and fitting it up as an accessory salesroom. It is in charge of A. J. Shorrock, formerly of the Autoparts Supply Co.

Tire Service House, Seattle, "Diamond" tire dealer in Northwest, has appointed H. B. Gerrard, formerly of the Kelly-Springfield Company, salesman for Northwest.

H. R. Mitchell, Seattle, formerly of Northwest Motor Co., has incorporated the Motor Sales & Supply Co. of North Yakima, Wash., Paige, Kelly-Springfield truck and Allen distributor.

Paul Brothers, Spokane, have established the Michigan Garage at Ash and Boone Streets.

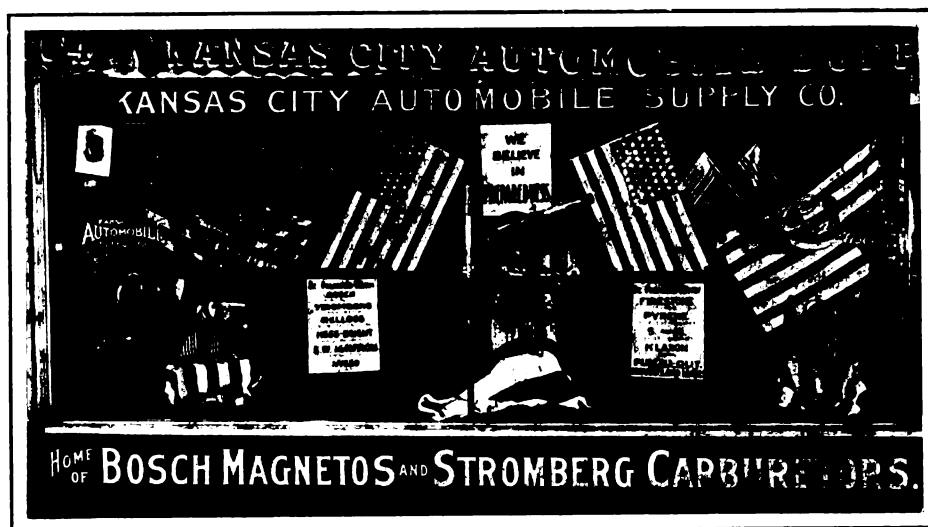
Harry L. Olive Co., Spokane, has taken the Inland Empire territory for the Premier. J. V. Hough is manager.

CANADA

The Motor Vehicle Co. of Montreal, Ltd., Montreal, Can., has taken over the business of the Gadbois Automobile Co. and will handle the Chalmers. The officers of the company are: President, L. E. Beauregard; vice-president and manager, A. E. Gadbois; secretary-treasurer, L. J. Gauthier.

The Chevrolet Motor Co. of Canada, Ltd., Oshawa, Ont., has increased its capital stock from \$500,000 to \$1,500,000.

Cashed In with a Patriotic Window Display



The Kansas City Automobile Supply Co., Kansas City, Mo., won attention during a preparedness agitation by staging a "preparedness window." The central figure was an aerial gun, revolving, its muzzle elevated as though seeking an airship to shoot down. The wheels were two Ford steering wheels; the axle a broomstick (while the company does not ordinarily sell broomsticks, one might be secured in an emergency). Two tire carrier irons formed the frame, each being attached at one wheel, and the two meeting above the axle, fastened together with the strap that accompanies such irons. The "gun" consisted of a Gabriel exhaust horn; a bolt through the first loop fastened the horn to the tire carrier irons.

The second loop was turned around the horn so that it extended upward, and in this loop was fastened the ornament of Uncle Sam which is seen on the top of the horn. The gun rested on a regular Firestone display stand, a tire-equipped wheel, horizontal, on the usual pedestal.

But this wheel had been equipped with a 64-tooth gear wheel from the main drive of a Ford, the gear wheel being attached to the axle of the display wheel on the under

side with bolts, holes having been bored in the sleeve for the bolts.

Operating this gear and revolving the display was a No. 1 pinion from a standard speedometer on the end of a rod actuated by a 1/4-hp. motor. The operating equipment has been used many times for moving displays. It is enclosed in a Weed chain box, the motor being in one end, and in the other gears for regulating the speed with which the upstanding rod holding the pinion is turned.

At each side of the display window was a smaller gun, of the ordinary field artillery variety. The wheels were, like those of the central artillery, Ford steering wheels. The bodies of the guns were Maxim silencers for Fords. Two arms off of tire holders, and straps, formed the frames, the barrels being surmounted by ornaments of Uncle Sam.

The window was profusely adorned with flags. In the center was a large sign: "We Believe in Preparedness." Two other signs gave specific suggestions as to preparation with automobile accessories.

The windows of the Kansas City Automobile Supply Co. are designed by F. R. Henry, who recently drew a \$10 prize in the Pyrene contest.

A Department of Better Mechanics

No. 19

Timken Rear Axle Adjustments

Full Instructions for Taking Up Wear on Gears, Bearings and Brakes

Gear Adjustment

Nos. 538, 574, 5381, 5395 and 5396, 5741 and 5742.

Fig. 1

Adjustment is always necessary when overhauling the axle, or when any or all of the following conditions are present:

- 1—Looseness in the bearings.
- 2—Any objectionable noise.
- 3—Backlash in the gears.

PINION SHAFT BEARING LOOSENESS

- 1—Loosen nut No. 1.
- 2—Tighten nut No. 2 until the shaft runs freely, without end play.
- 3—Back off nut No. 2 one-quarter turn.

- 4—Tighten up on nut No. 1.

If noisy gears result, proceed as in "To Make the Axle Quiet."

DIFFERENTIAL BEARING LOOSENESS

- 1—Remove locking wires on the bearing cap screws.
- 2—Loosen the bearing cap screws one-half turn.
- 3—By turning the adjusting rings, C and D, away from the differential, force the bearings into their races.
- 4—If backlash is the result of this adjustment, proceed as directed in "To Remove Backlash."

In adjustment of the gears, removal of the plug No. 3 will permit the backs of both the pinion and the ring gear to be seen. After overhauling, adjustment should start with the backs of the two gears flush.

To Make the Axle Quiet

Fig. 2

- 1—Loosen nut No. 1, Fig. 1.
- 2—Loosen nut No. 2.
- 3—Remove the strap at B, covering the rear pinion shaft adjusting collar.
- 4—Loosen the clamp bolt No. 4.

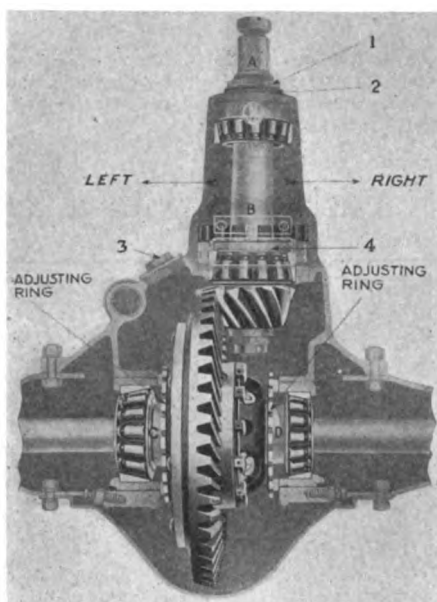


Fig. 1—Phantom view of one type of Timken axle showing adjustments

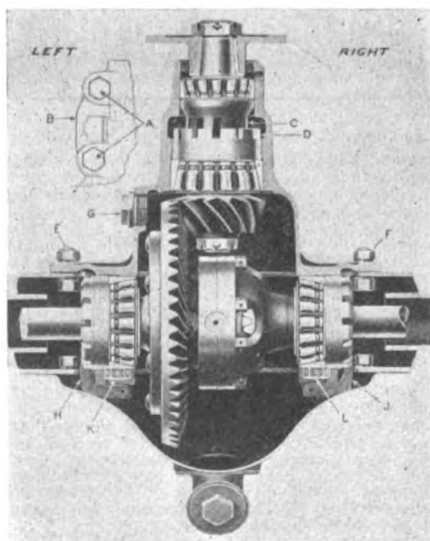


Fig. 2—Photographic section through another type of Timken axle

- 5—Turn the slotted adjusting collar one notch toward the left.

- 6—Tighten nut No. 2.

- 7—Tighten nut No. 1 until all end-play is removed, yet not tight enough to cause the shaft to bind.

- 8—By trial, determine whether the noise has increased, or decreased. If the noise has decreased, repeat the adjustment, turning the slotted adjusting notch by notch, until the greatest degree of silence is reached.

- 9—If the noise increases after the first adjustment, set the slotted adjusting collar back two notches in the opposite direction, and adjust in that direction until the noise is eliminated.

- 10—After all noise is removed, and all end play has been taken out of the pinion shaft, back up nut No. 2 one-quarter turn, and then tighten up nut No. 1.

- 11—Bend lock washer over one flat of each nut.

- 12—Tighten up clamp bolt No. 4 and replace the strap at B.

To Remove Backlash

Fig. 2

The backlash between the gears should be barely perceptible, as it tends to increase the driving shock and to increase the wear. The permissible amount of backlash is about .005 in.

- 1—Remove the locking wires on the bearing cap screws.

- 2—Loosen the bearing cap screws one-half turn.

- 3—Turn adjusting ring D to the left, loosening it slightly.

- 4—Turn adjusting ring C to the left, forcing the ring gear into the pinion.

- 5—Balance the positions of the locking rings until the gears work freely all the way around, yet with barely perceptible backlash. If the rear axle has just been overhauled, by painting the gear teeth with Prussian blue, the registration of the teeth may be noted. The gears should mesh evenly throughout their tooth length.

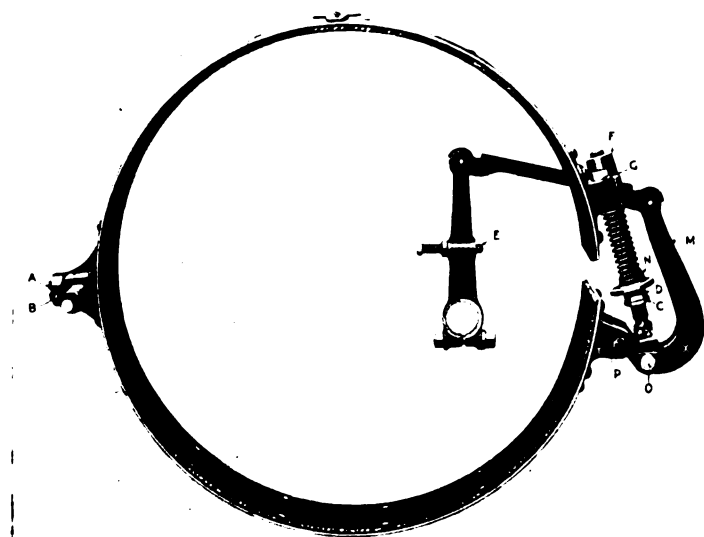


Fig. 3—External brake, showing points of adjustment

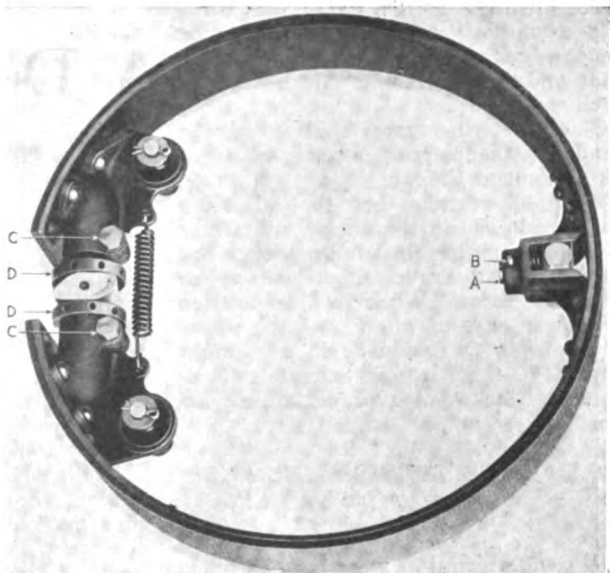


Fig. 4—Cam type internal brake—adjustments at A and D

- 6—Replace the locking pins in the slots of the adjusting rings.
- 7—Tighten the cap screws.
- 8—Replace the locking wires.

Gear Bearings

Nos. 5230, 5240, 5241 and 35C. See Fig. 1.

Fig. 2

TO REMOVE BEARING LOOSENESS I—IN PINION SHAFT

- 1—Remove member marked A, Fig. 2.
- 2—Remove locking key marked B.
- 3—Hold ring D still.
- 4—Turn ring C towards the right. All end play should be removed, but the pinion shaft should turn freely.
- 5—Replace key B and nuts A.

II—IN DIFFERENTIAL BEARINGS

- 1—Remove lock wires in cap screws L, and loosen the cap screws one-half turn.
- 2—Release lock finger J.
- 3—Turn adjusting ring F toward the differential until all bearing looseness is removed. The differential should turn freely.

TO REMOVE BACKLASH

- 1—Remove locking wires.
 - 2—Loosen capscrews K and L one-half turn.
 - 3—Unsnap lock fingers from both locking rings.
 - 4—Turn adjusting ring F, freeing differential.
 - 5—Tighten adjusting ring E, forcing the gear teeth together. (The threads on the adjusting rings are right hand.)
- Balance the position of these adjusting rings until the backlash between the gears is barely perceptible. The gears must turn freely all the way around.

TO ELIMINATE NOISE

- 1—Remove bolts A.
- 2—Remove locking pin B.
- 3—Turn rings C and D toward the left until the quietest point is found. If the noise increases, turn the rings in the opposite direction. In making this ad-

Subject	No. of Issue	Date
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Bulck—Rear axle adjustment	8	Jan. 31
Chaimers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor	12	Feb. 28
Paige—Oil level adjustments	13	Mar. 7
All Cars—Removing compression knock	14	Mar. 14
All Cars—Rebuilding the Storage Battery	15	Mar. 21
Cadillac—Rebuilding the radiator	16	Mar. 28
Ford—Magnet replacement on magneto	17	Apr. 4
Saxon—Clutch repairs and adjustments	18	Apr. 11

justment these rings must be turned together by using a tool broad enough to catch both rings.

Brakes

CONTRACTING BAND

Fig. 3

Before any adjustment is made on the brakes the following points should be examined, and if found faulty corrected:

- 1—Note whether the bands are greasy or dirty. Wash with kerosene.
- 2—Slipping or

dragging may be caused by insufficient travel of the brake rods. Lengthen or shorten the rods, as directed by the car manufacturer. But make no adjustments on the brake until the rods are the proper length.

EXTERNAL BRAKE ADJUSTMENT

- 1—Jack both rear wheels up from the floor. Place the jack beneath the axle proper, and not beneath the truss rod.
- 2—Release the brakes.
- 3—Adjust the setscrew E, so that the distance between the lever M and the support N is approximately 1/16 in. When the setscrew E is not present, make this adjustment by lengthening or shortening the brake rod.
- 4—Starting at the rear of the brakes, remove cotter pin B.
- 5—Tighten adjusting screw A until the distance between the drum and the band is about the thickness of a hack saw blade.
- 6—Replace the cotter pins B.
- 7—Adjust lower front half of the

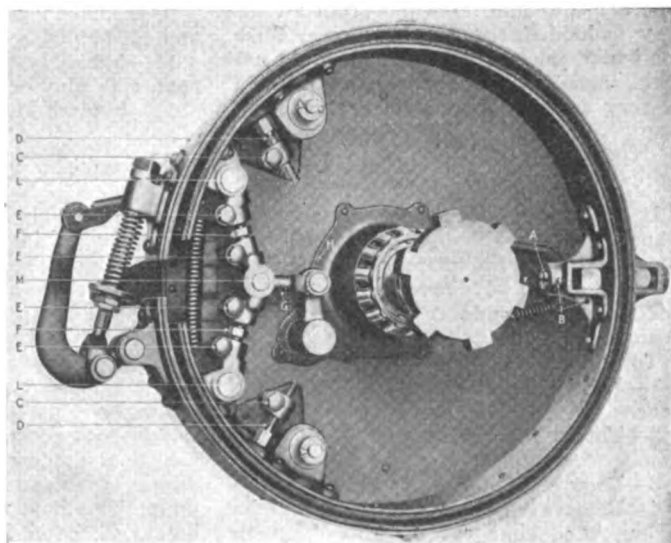


Fig. 5—Toggle-expanded internal brake which may be fully adjusted from the outside

bands next by loosening jam C and turning stopnut D up or down until the distance between the lower half of the band and the drum is the thickness of the hack saw blade.

8—Adjust the upper halves of the bands to the same clearance by turning the nut at F.

9—Make certain that the adjusting nuts are locked in the final position.

10—When the final adjustment has been made the brakes should be applied with full force. When in this position the lower edge of pin P and the upper edge of pin O should be in a straight line X-Y, that is approximately horizontal. This assures proper toggle action.

CAM TYPE INTERNAL BRAKE ADJUSTMENT

Fig. 4

A small amount of wear may be taken up by loosening the locknuts (Fig. 4) on the cam levers and setting the ratchets ahead one or two notches, after which the locknuts are again tightened.

For internal adjustment:

1—Jack both rear wheels clear from the floor.

2—Throw brakes into off position.

3—Remove the wheels.

4—Remove cotter pin B and turn screw A two turns in clockwise direction.

5—Replace cotter pin B.

6—Loosen setscrews marked C.

7—Turn cam plates marked D one-half turn in a counter clockwise direction. Tighten screws marked C.

8—Replace wheel, or, using a cut-away dummy drum, determine whether the brakes drag when released or slip when on. By extending or reversing the above adjustments, obtain the correct setting of the brakes.

9—Replace the wheels and adjust the bearings, as outlined in Rear Wheel Bearing Adjustment.

When the brakes have been relined, it will be necessary to set the cam plates C and C, so that the lining clears the drum by the thickness of a hacksaw blade, all the way around. Then note whether the band hugs the drum all the way around when partially on. With the brake released the lining should not drag, and the camshaft levers should be very nearly in a vertical position.

INTERNAL TOGGLE BRAKE

Fig. 5

It is not necessary to remove the wheels on cars having brakes of this type, as there is a triangular hand hole in each drum. If any replacement of parts has been made, the use of a dummy drum will facilitate the adjustment.

To adjust the brakes (Fig. 5):

1—Jack both rear wheels up from the floor.

2—Throw all brakes into "off" position.

3—Remove hand hole cover plates.

4—Remove cotter pin B and set the screw A so that the distance between the drum and the band is the thickness of a hack saw blade.

5—Replace cotter pin B.

6—Loosen the lock screws marked C.

7—Turn screws marked D until the upper and lower halves clear the drum by the thickness of the hack saw blade.

8—Lock screws marked C.

9—Loosen the four lock screws marked L.

10—Turn screws marked F until the side of a short, thin straight edge placed against the rear of pins marked L just touches the forward edge of the central pin, marked M.

11—Tighten setscrews marked L.

Wheel Adjustment

Fig. 6.

1—Turn the bearing up tight and revolve the wheel several times. This removes any backlash (Fig. 6).

2—Back off the adjusting nut slightly.

3—Grasp the spokes, as shown in Fig. 4, and shake the wheel back and forth. If the shake is barely perceptible, the wheel is in proper adjustment.

4—Lock the bearing in position.

FRONT WHEEL ADJUSTMENT

1—Jack wheel free from floor.

2—Remove hub cap.

3—Remove cotter pin from in front of outer locknut.

4—Remove outer locknut.

5—Remove thin lock washer.

6—Grasp wheel, as shown in Fig. 5, and work back and forth, to determine any looseness.

7—Remove any appreciable looseness by tightening up on the locknut. This should remove all but the smallest amount of looseness.

8—The wheel should swing freely when correctly adjusted.

9—Replace lock washer, outer locknut, and cotter pin.

10—Again test the wheel for looseness, side play or binding.

11—Replace hub cap.



Fig. 6—Shaking the wheel to determine bearing looseness

tice to bore or to drill a $\frac{3}{8}$ -in. hole. The surplus oil drains back into the sump and prevents piling up of the oil in the troughs.

If this does not remove the trouble, we would advise you to drill holes through the pistons. These holes should be about $\frac{1}{16}$ in. in diameter, drilled in a groove cut below the first ring above the wrist pin, and should be about six in number. If there are holes already drilled in the piston, we would advise you to ream them out somewhat larger.

On one certain car we had seen all of the foregoing changes carried out before the trouble was cured. The cause really is that one of the plugs gets dirty from the excess oil, causes skipping, which, in turn, causes condensation of the heavier parts of the gas, and this drains down into the base, diluting the oil.

If the valves have a tendency to stick skipping will result, which, in turn, will cause condensation of the gas and dissolution of the oil. The remedy is to remove the valves, clean them carefully and possibly polish the stems up slightly with emery paper to prevent sticking.

Care of Hudson Oiling System

Do not neglect to drain the oil from the motor at least every 500 miles.

Some manufacturers recommend a complete change of oil once a week, but we believe that IF OUR INSTRUCTIONS ARE CONSCIENTIOUSLY CARRIED OUT, no harm will result to the Super-Six motor from this source.

One of the products of combustion is water. During the cold weather some of this is bound to reach the oil reservoir. If the periodical drainage of oil is neglected, burned out bearings and scored cylinders may result. This is due to the fact that the water, finding its way to the oil pump, will temporarily shut off the flow of lubricant, causing the motor to run dry.

Carefully watch the oil pressure gage on the dash. This should register pressure at all times when the motor is running.

Remedy for Overoiling on a Buick

The first thing to look for is to see that the oil level in the troughs is not too high. The dips on the connecting-rods should dip $\frac{1}{16}$ of an inch into the oil in the troughs, no more and no less. If the dip is more you can readily file off the point of the dipper.

The level of the oil in the trough itself is kept constant by drilling a $\frac{1}{8}$ -in. hole in the side of the trough which the dipper strikes first when the car is running. This hole would be at the desired height of the oil level in the trough.

Half way between each of the troughs in the oil pan it is also common prac-

Industry Little Affected by War

**Several Factories Have War Contracts, but Only
One Has Reduced Normal Production
on This Account**

DETROIT, April 16—Industrial preparedness and war needs are gradually affecting the automobile industry, though motor car production continues at a normal rate. The great majority of manufacturers still await instructions from the government and it is believed that many will not be asked to participate in the preparedness operations. Some are already engaged in the manufacture of munitions, army trucks and airplane motors, but have not been forced to reduce their production of motor cars or parts.

As the situation now stands there are four large motor car makers either manufacturing or preparing to manufacture trucks and airplane engines, three truck manufacturers making army trucks and several parts concerns manufacturing shells, gun-sights and other military necessities. Of these but one parts maker has reduced normal production to allow for munitions activities.

One carburetor maker has recently completed new furnaces which the government found suited for the manufacture of castings used in assembling war munitions, and arrangements have been made so that this concern will shortly engage in that work.

A western manufacturer of carburetors has arranged with the government for airplane engine construction and will soon enter that field. This maker has already made a special aluminum aviation engine weighing 397 lb. and which has been found satisfactory.

War Preparation Everywhere

A large motor car maker, who refuses to divulge any information as to government work, has replaced the usual state license tags on its service trucks with the tags used by the United States army.

The employees of the Reo Motor Car Co. have organized and are holding meetings to sign up anyone who desires to enlist for military training and volunteer service. The officers are members of the Reo Rifle Club which has been equipped by the government.

The Saxon Motor Car Co. is encouraging the enlistment of its employees in the army or navy by promising financial aid and participation in any bonuses earned in their absence as well as guaranteeing the men their present positions on the termination of the war. Men of seafaring experience who will enlist will be paid the difference between their present earnings at the Saxon factory and the wage paid by the government during

their service or until the government makes satisfactory provision for caring for dependents of enlisted men. The company makes this offer to experienced men for the navy because the navy is the first line of defense and the government is particularly anxious to recruit it to its full strength.

Motor equipment valued at \$100,000 and ranging from small side cars to touring cars, army trucks and armored machine gun cars will form the equipment of the Thirty-first Michigan Regiment when the plans of motor car makers are completed. The plan includes the motorizing of the machine gun company at a cost of \$50,000 and the donation of trucks, touring cars and side cars valued at another \$50,000, to the different battalions of the regiment. This will probably make the regiment one of the best motorized units in the National Guard. The Owen & Graham Co. donated a truck several days ago and a group of car makers who at present prefer to remain in the background will add \$50,000 worth of the equipment. Detroit being the home of motor car manufacture, these men believe it is appropriate if only from a civic viewpoint that the Detroit regiment should be well supplied with every kind of car required.

Many inquiries are reaching the differ-

ent factories regarding the future outlook for a large production of motor cars. The majority of the makers are optimistic and believe that the supply, labor and materials will continue sufficiently to insure a steady production, though it is believed that materials may advance considerably in price. A few makers are reported to have reduced their production temporarily owing to the demands made by the government for steel and other materials used by both the war department and the motor car manufacturers.

St. Paul Aids Preparedness

ST. PAUL, April 14—The Automobile Trade Association, a new organization, has asked persons or firms who will donate or sell cars to the government to notify President Dr. A. A. VanDyke at the offices in the Germania Life Building. Cars and trucks are to be listed according to model and make for future use. The association expects to record every truck and car that will be available. The Minneapolis Automobile Trade Association has not yet determined to make a war census in that city.

Sheriff John Wagener of Ramsey county with headquarters here will have at his call a squad of automobile minute men. More than 25 citizens put their cars at the sheriff's disposal for war emergency use. The cars will be ready for any hurry call to take special deputies to any part of the city or county. The St. Paul Motor Boat Club is taking a census of members who will offer their craft to the government. About 32 boats of above 40 feet will be available.

J. A. McNulty, of the McNulty & Glenny Co., 1406 Hennepin Avenue, Minneapolis, has offered the services of a truck for the citizens' auxiliary which is drilling at St. Thomas Academy here.

Harry Ford on War Board

DETROIT, April 14—Harry W. Ford, president of the Saxon Motor Car Corp., has been made a member of the National Advertising Advisory Board which will direct government advertising during the war.

Shock Absorber Maker Assists in Preparedness

BENTON HARBOR, MICH., April 13—Among the offers being made by various concerns in the motor industry to help in the preparations for war is that of the Climax Shock Absorber Co., Benton Harbor, Mich. It has announced that it will contribute 20 per cent to the Red Cross or other approved fund on every set of Climax shock absorbers sold by it to car owners on or before June 30. The shock absorbers sell at \$25 a set, and at present the company is selling them direct to the owner on a trial and money-back basis if not satisfactory. The officers are: President, William A. Vawter; vice-president, John Steiner; secretary, Frank E. Coombs; treasurer, William A. Vawter, II; and general manager, L. W. R. Tennant.

New York, April 16, 1917

Mr. Grosvenor Clarkson, Secretary,
Council of National Defense,
Munsey Building,
Washington, D. C.

Dear Sir: Under direction of our Board of Directors, Motor World takes great pleasure in offering to all departments of the Government full co-operation of its editorial columns, for the purpose of assisting in the mobilization of the automobile industry, and the promotion of any project undertaken by the Government during the present condition of war.

We further offer to the Government the free use of our advertising pages to assist in placing the new bond issue, or for such other announcements as the Government wishes to make officially.

The commands of the Government in these matters will receive our prompt and careful attention.

Very truly yours,

H. M. SWETLAND,
President.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

W. C. Davies has become comptroller and secretary of the Burd High Compression Ring Co., Rockford, Ill. He was formerly connected with the Chicago branch of the Hudson Motor Co. and succeeds J. P. Linnen, resigned.

J. E. Duffield has been made general manager and treasurer of the Bailey Non-Stall Differential Co., Chicago.

J. H. Dutch has been appointed manager of the Pittsburgh branch of the Firestone Tire & Rubber Co. He succeeds G. A. Richards, who has been placed in charge of the Manufacturers Sales Division of the company with headquarters in Detroit.

C. W. Hatch has been made manager of sales of the Parish & Bingham Co., Cleveland, Ohio.

Fred W. McIntosh has been made sales manager of the Overland Fort Dodge Co., Fort Dodge, Iowa.

Frank Shaw has been appointed traffic manager of the Harroun Motors Corp., Detroit.

J. D. Vall, former manager of the Salt Lake City office of the H. W. Johns-Manville Co., has been appointed manager of the Building Materials Department of that company's branch at Chicago. In the future the Salt Lake City office will be under the management of C. F. Cate. The Great Falls, Mont., office will be managed independently of Salt Lake City by J. H. Roe.

Walter D. Clark, formerly with the Cleveland Electric Illuminating Co., has joined the sales force of the Marathon Tire & Rubber Co. He will be located in Pittsburgh.

C. J. Connors, who has been special representative of The Marathon Tire & Rubber Co. in the Southwestern States, has been appointed manager of the company's division office and warehouse in St. Louis.

Robert Ritchie, advertising manager for the C. S. Henshaw Co., Boston, Dodge dealer, has joined the Alvan T. Fuller Co. to handle the Packard advertising.

L. N. Laupret has been appointed sales manager of the Heinze Electric Co., Lowell, Mass. Laupret has been with the Heinze Electric Co. for 12 years. He fills the vacancy left open by the death of P. J. Legary.

C. P. Brewster has been appointed special factory representative of the Edward A. Cassidy Co., New York. He was formerly in Philadelphia. His new duties will take him through the Detroit factory territory, where he will have his headquarters.

C. H. Roberts has been appointed comptroller of the Hess-Bright Mfg. Co., Philadelphia. He was formerly factory accountant.

Vernon E. Bush, vice-president and assistant sales manager of the Advance-Rumely Co., Laporte, has resigned and will leave May 1 for New York, where he will become associated with the White Motor Truck Co., taking a position in the foreign sales department.

E. B. French, who has been assistant manager of the Harrisburg, Pa., branch of the S. F. Bowser Oil Tank & Pump Co. of Fort Wayne, has been made assistant to Eastern Manager R. S. Colwell at the Fort Wayne office.

W. J. Gerhart was appointed factory superintendent of the Monitor Motor Car Co., Columbus, Ohio, March 1.

William M. Nevin, for many years connected with the trade, has joined the sales force of the Earl B. Chase Co., Providence, R. I., Velle distributors.

Herman R. Smith, assistant sales manager in New England for the Studebaker Corp., was last week appointed sales manager of the Kenworthy-Clark Co., Studebaker distributor in Rhode Island and southern Massachusetts.

Arthur S. Lee, Providence, R. I., was made manager of the Knight Automobile Co. last week, succeeding Harry D. Gilbert, resigned. Lee will retain charge of the Union Motor Sales Co., which will be operated independently.

J. Roy Hiltz has been placed in charge of the new Locomobile agency opened at Providence, R. I., last week on Broad Street.

James P. Hunting has been appointed manager of the Cleveland branch of the Macavoy Advertising Co., Chicago. He was formerly treasurer of the Singleton-Hunting Co.

P. P. Willis has joined the M. V. Kelley Co., Toledo.

Walter F. Schmitt has been appointed district manager for the Packard Motor Car Co. for the territory west of the Mississippi River, including Memphis and Cincinnati. He was formerly field representative for the Packard company. **O. E. Brown** has been

appointed director-manager of the territory east of the Mississippi River with the exception of Cincinnati and Memphis.

H. S. Daniels, manager of the publicity department of the Kissel Motor Car Co., Hartford, Wis., has resigned to become identified with the Dort Motor Car Co., Detroit. **Ralph Kay**, now connected with the advertising department of the Stewart-Warner Speedometer Corp., Chicago, has been appointed to fill the vacancy caused by Daniels' resignation.

W. F. Sturm has been appointed manager of the contest and trials section of the Chalmers Motor Co. advertising department. He has handled transcontinental trips for Stutz and Cadillac and had complete charge of the double transcontinental trip of the Hudson super-six.

P. H. Mackworth, Portland, Ore., has recently assumed management of the Motor Parts Mfg. Co.

S. Bruce Sommervell, Seattle, formerly with the Waterhouse-Sands Motors Co., has become connected with the Fentress Motor Car Co., Peerless distributors.

J. R. Murphy, recently of Portland, Ore., has been appointed manager of the retail truck sales department of the Farnsworth Motor Car Co., Denby distributor, with headquarters in Seattle.

A. C. Sainave, of the William T. Patter Motor Car Co., Seattle, has become connected with the Paige Motor Sales Co., Seattle.

Seymour J. Frank, assistant secretary of the Lozier Motor Co., Detroit, in charge of purchases, has filed his resignation, effective March 31, 1917. He is leaving to return to the practice of law in which he was engaged prior to his affiliation with the Lozier Motor Co.

C. P. Brewster of the Edward A. Cassidy Co., New York, heretofore located in Philadelphia, has been appointed special factory representative to take care of the automobile factories in the Detroit field, and will after April 10 have his headquarters in Detroit.

P. H. Diggle has been appointed manager for the B. F. Goodrich Rubber Co., Dallas. He went to Dallas from the factory and for some time has been assistant manager at Dallas.

W. G. E. Birkett, former advertising manager of the Gray Motor Co., has been appointed advertising manager of the Standard-Detroit Tractor Co., Detroit.

J. F. Schiller, Jr., Seattle, Northwest factory representative of the Willard Storage Battery Co., has been promoted to the northern California territory. **L. Y. Ovitt** has been appointed to succeed Schiller.

Max Olsen, Seattle, has been appointed sales manager in Northwest territory for the Roesch Motor Car Co. Olsen has been district representative for the Velle factory in Northwest.

Darwin Hanauer has been appointed chief engineer of the HAL Motor Car Co., Cleveland. He will specialize in the designing of custom bodies.

R. A. Fisher has been appointed production manager of the Curtiss Aeroplane factory, Buffalo, N. Y. He was formerly superintendent of the Continental Foundry & Machine Co. of Fort Madison.

Robert A. Adams, purchasing agent of the Continental Motors Corp., Detroit, has resigned to return East.

Norma Bell, formerly sales engineer in the automobile division of the Lunkenheimer Co., Cincinnati, has joined the Norma Co. of America, New York.

Motor Car Securities Quotations

	April 14, 1917	Bid	Asked
*Ajax Rubber Co.....	69	72	
*J. I. Case T. M. Co. pfd.....	83	86	
Chalmers Motor Co. com.....	20	28	
Chalmers Motor Co. pfd.....			
*Chandler Motor Car Co.....	95	101	
Chevrolet Motor Co.....	113	118	
Fisher Body Corp. com.....	32	38	
Fisher Body Corp. pfd.....	94	96	
Fisk Rubber Co. com.....	70	75	
Fisk Rubber Co. 1st pfd.....	103	106	
Fisk Rubber Co. 2d pfd.....	70	100	
Firestone Tire & Rub. Co. com.....	132	137	
Firestone Tire & Rub. Co. pfd.....	106	108	
*General Motors Co. com.....	111½	112	
*General Motors Co. pfd.....	85½	87½	
*B. F. Goodrich Co. com.....	51	51½	
*B. F. Goodrich Co. pfd.....	107½	109	
Goodyear Tire & Rub. Co. com.....	215	222	
Goodyear Tire & Rub. Co. pfd.....	106	107	
Grant Motor Car Corp.....	6	8	
Hupp Motor Car Corp. com.....	4	5	
Hupp Motor Car Corp. pfd.....	78	82	
International Motor Co. com.....		16	
International Motor Co. 1st pfd.....		69	
International Motor Co. 2d pfd.....		30	
*Kelly-Springfield Tire Co. com.....	56	58	
*Kelly-Springfield T. Co. 1st pfd.....	88	94	
*Lee Rubber & Tire Corp.....	20½	21	
*Maxwell Motor Co., Inc., com.....	52	53	
*Maxwell Motor Co., Inc., 1st pfd.....	66	69	
*Maxwell Motor Co., Inc., 2d pfd.....	32	34	
Miller Rubber Co. com.....	215	225	
Miller Rubber Co. pfd.....	104½	106	
Packard Motor Car Co. com.....		165	
Packard Motor Car Co. pfd.....		101	
Paige-Detroit Motor Car Co. pfd.....	34½	35½	
Peerless Truck & Motor Corp.....	10	15	
Portage Rubber Co. com.....	145	150	
Regal Motor Car Co. pfd.....		24	
*Reo Motor Car Co.....	30	32	
*Saxon Motor Car Corp.....	52	54	
Springfield Body Corp. com.....	63	70	
Springfield Body Corp. pfd.....	105	112	
Standard Motor Construction Co. 13½		14	
*Stewart-Warner Speed. Corp.....	75½	76½	
*Studebaker Corp. com.....	92	92½	
*Studebaker Corp. pfd.....	104	106	
Swinehart Tire & Rubber Co.....	70	78	
United Motors Corp.....	35	35½	
*U. S. Rubber Co. com.....	58½	59	
*U. S. Rubber Co. pfd.....	109½	110	
*White Motor Co.....	47	48	
*Willys-Overland Co. com.....	31½	31½	
*Willys-Overland Co. pfd.....	96½	97	

*At close April 14, 1917. Listed New York Stock Exchange.

†Par value \$10.

New York Speedway to Be Put Up at Auction

Sheepshead to Be Sold May 1 at Mortgage Foreclosure by Harkness—May Have Races

NEW YORK, April 13—The Sheepshead Bay Speedway on May 1 will be put on the block at a foreclosure sale in Brooklyn. Harry S. Harkness, president and chief backer of the Sheepshead Bay Speedway corporation, has taken over the mortgage, having purchased the \$2,040,000 first mortgage for \$1,650,000, paying \$550,000 in notes bearing his endorsement. Harkness's plans are not known, but there is a possibility of automobile racing being continued during the first half of the year, as the racing drivers, though signed up to enter the government service, have not as yet received any definite information as regards entering this service. Harkness has several of his cars at the track now which practically indicates that he will continue in the racing game.

Hydraulic Company Expanding

CLEVELAND, April 13—The Hydraulic Pressed Steel Co. is negotiating to acquire a steel mill, the name of which has not yet been announced, of 250,000 tons' capacity. Plans are that the mill will supply the Hydraulic company and the Cleveland Welding and Mfg. Co. which the Hydraulic concern owns, and that the mill will also manufacture a finished product itself. This deal, if completed, will make the Hydraulic company a unit from the source to the finished product. The Hydraulic company plans ultimately to use the mill's entire capacity.

Improving Willard Service

CLEVELAND, April 14—The Willard Storage Battery Co. has added a new department for the betterment of the service rendered to the individual car owner. The entire time of this department will be devoted to the supervising of the service given by each of the service stations. A. C. Hyser, formerly branch manager at Atlanta, has returned to Cleveland and will assume the position of general supervisor of service. Hyser will devote his entire time and efforts to the direction of supervisors who will be stationed at various points throughout the country.

Lewis in a Coil Company

RACINE, April 14—Captain William Mitchell Lewis, former president and general manager of the Mitchell-Lewis Motor Co., and James W. Gilson, a former associate official in the concern, appear as incorporators of the Western Coil & Electrical Co., Racine, organized with a capital stock of \$30,000. As already noted, Gilson some time ago established

an electrical goods manufacturing plant in Chicago, and this now will be moved to Racine.

Piggins Bros. Complete Company

RACINE, April 14.—The Piggins Bros., who announced a short time ago their intention to engage in the manufacture of motor trucks on a large scale, have organized the Racine Motor Truck Co., with a capital stock of \$50,000 and will establish a plant at once. The backers of the company are Charles P. and Fred H. Piggins, heavy wagon, truck and axle builders, and Ira L. Miller, Los Angeles.

Record Saxon Shipment

DETROIT, April 14—Shipments of the Saxon Motor Car Co. in March were 3268 cars, compared with 2604 in March, 1916. Shipments last month were the largest of any month since the organization of the company, with the exception of April, 1916, when the total reached 3405. March was the fourth month in which car shipments exceeded 3000, the other three being April, 1916, the record month, June of last year with 3122 cars, and last December with 3016 cars. Operations of the company in March represented a complete recovery from the effects of the fire at its plant in February, which restricted shipments in that month to 971. The company in the calendar year 1916 shipped 28,148 cars, compared with 18,755 in 1915 and 7323 in 1914.

Clock Factory for Waverly

BELOIT, WIS., April 14—The Waverly Novelty Co., Pittsburgh, which recently purchased the electric clock business of the Stewart-Warner Speedometer Corp., has made arrangements to establish a plant in Rockton, Ill., just south of Beloit, which is on the Wisconsin-Illinois state line. Until the new plant is ready, the manufacture of electric clocks will be continued in the Warner works of the corporation in Beloit. E. M. Thompson, inventor of the clock, is general superintendent.

Gryphon Starts Making Tires

NEW YORK, April 14—The Gryphon Rubber & Tire Corp. has started active manufacturing in its new plant at 192nd Street and Bailey Avenue. The plant is fully equipped with the latest tire and tube making machinery and has a daily capacity of 400 tires and 500 tubes. The company is fully supplied with materials for the manufacture of a high-grade tire, guaranteed for 6000 miles. The Gryphon concern has a three-story, 60 x 150-ft. plant. The officers are: J. W. Jones, president; P. S. Jones, vice-president; S. A. E. Cunningham, treasurer; J. C. Straussman, secretary, and A. A. Gordon, general manager. Mr. Gordon was formerly with the Ajax company. He was also vice-president and general manager of the Gordon Rubber Co., Canton, Ohio, also general manager of the Newcastle Rubber Co., Newcastle, Pa.

Doble Designing Steam Truck for Army Service

Will Submit It to Government When Ready for Tests—Drive 3 to 1—Fan Behind Radiator

DETROIT, April 14—The General Engineering Co. is completing a special design of the Doble steam power plant for use in trucks. The work is being hastened so that a finished truck may soon be submitted to the United States War Department for tests. Details of the Doble truck power plant are not yet available for publication. The engine is of a very different design from that used in the pleasure car and the weight is entirely supported by the frame. The drive will be through a three-to-one reduction at the differential, and the fan will be employed behind the radiator, or condenser to insure perfect condensation. There will be no clutch or gearshift mechanism.

Springfield Merges Two Companies

NEW YORK, April 14—The Springfield Motors Co. has completed arrangements for merging the John Davenport Foundry Co., Stamford, Conn., and the Amco Motor Co., Norwalk, Conn., and will use the plants of these companies for the manufacture of automobile, motor truck and aeroplane engines. The six-cylinder Amco engine now being produced by that concern will be continued for automobile use, and truck and aeroplane engines are being developed. It is the intention of the Springfield company to eventually bring the Amco plant to Stamford, thus concentrating activities at one point. The Davenport firm will continue to make castings for the engines.

There have been some changes in the Springfield organization, which now has the following officers and directors: John J. Cone, president, is a partner in the engineering firm of the Robert W. Hutton Co.; E. C. Morse, vice-president, is vice-president and general manager of the Chalmers Motor Co.; W. H. Hoople, vice-president, is president of the American Motors Corp. and also of the Interstate Electric Co.; Gerard Roberts, secretary and treasurer, is an attorney. Directors in addition to the above are: E. S. Kelly, formerly president of the Kelly Motor Truck Co.; Louis Chevrolet, vice-president and chief engineer of the American Motors Corp., and E. J. Shriber, of Johnson & Higgins, an insurance company.

Dodge Brothers Lose Ford Fight

LANSING, MICH., April 11—John and Horace Dodge appeared personally last night to fight their case against Henry Ford before the legislature and lost. The Scott bill to permit corporations to increase their capital to \$75,000,000 was reported out to-day by the house committee without the Dodge amendments.

Northwest Should Have 3 Times Its 1916 Crop

Nearly 300 Per Cent Increase Estimated by Great Northern Export—315,000,000 Bushels

MINNEAPOLIS, April 14—With only a normal crop this year Minnesota, Montana and North and South Dakota should produce 315,000,000 bushels of wheat as compared with 120,000,000 last year, estimates J. Robinson, industrial agent for the Great Northern road. He bases his estimate on railroad and government reports. These figures give the following:

State	Bushels	
	1916	1917
Minnesota	25,000,000	60,000,000
North Dakota	39,000,000	125,000,000
South Dakota	27,500,000	65,000,000
Montana	28,600,000	65,000,000

Acreage sown will be slightly larger in South Dakota, 8 to 10 per cent in Minnesota, 10 per cent in North Dakota and 25 per cent in Montana. Conditions are favorable for a good yield. Corresponding increase is expected in other grains. Snow melted slowly and was absorbed by the ground instead of running off.

Winter wheat came through well in Montana, where last year 60 per cent was killed by the winter, and seeding is 15 days ahead. Seeding in Minnesota, North and South Dakota is about 20 days advanced.

Tire Dealers Band Together

LOUISVILLE, KY., April 14—The Rubber Band, an organization composed of local tire dealers, has been incorporated for the purpose of improving conditions in the tire business, the exchange of ideas and closer co-operation. The incorporators are: A. F. Wolke, Ben B. Kelly, Roy E. Warner, F. A. Jack and Keith L. Bullitt. The corporation has no capital stock.

Chicago Association To Post Roads

CHICAGO, April 14—Objections raised by park commissioners who control the Chicago boulevard system against sign boarding the boulevards to indicate the best ways of getting into the city from the Lincoln highway have been overcome and members of the Chicago Automobile Trade Association through popular subscription will mark the feeders to the Lincoln highway from Dyer, Ind. By marking the route in and out of Chicago, the dealers believe they will get much more tourist business.

Coast Truck Show Draws Well

SAN FRANCISCO, April 14—Voted by all participants one of the big successes of the year, and proclaimed by Eastern factory men as the largest exclusive truck exhibit ever staged west of Chicago, the

commercial motor show came to a close this evening after a 5-day run at the Exposition Auditorium.

Approximately 25,000 people attended and every exhibitor reported sales. The event was managed by Ivan R. Gates and resulted in the formation of a new organization called the California Motor Truck Dealers and Manufacturers Association. The new organization will co-operate in making the commercial car show one of San Francisco's annual events.

Space for Chicago Used Car Show All Taken

CHICAGO, April 14—Applications for space in the used car show to be held in the Coliseum in May have practically all been received, and according to a report made to-day, enough space has been contracted for to pay the expense of obtaining the Coliseum. There are 5 small spaces that will be rented to accessory concerns. There is some difference of opinion as to whether the show should be kept open on Sunday and this question is to be put to a mail vote this week.

Locomobile Holds Another Used Car Show

NEW YORK, April 14—The New York Locomobile branch this week held another of the Exchange Locomobile Shows it began several years ago, and disposed of about 15 cars during the week. The demand for rebuilt cars of the Locomobile class is said to be good and the net result was satisfactory.

To stage the show, the new car salesroom was cleaned out and given over to used vehicles, most of which looked quite new in their fresh paint. All the new and used car salesmen concentrated on the exchange car work.

Prior to the show announcements were sent to a selected list, and several sales were made the week before at an "advance showing." Newspaper advertising of Locomobile atmosphere was used and the literature sent out was of a high grade.

Partridge Enters Boston Owen Company

BOSTON, April 14—E. S. Partridge of New York has been made a member of the board of directors of the Owen Magnetic Motor Car Company of Boston that has just been formed to succeed the M. F. Chase Co. No other change has been made in the personnel of the company, which changed its name from the M. F. Chase Co. to identify the company more closely with the car. An offer has been made to have the company take on the Bourne Magnetic truck of Philadelphia.

Shaler Adds a Building

WAUPUN, April 14—The C. A. Shaler Co. is building a large addition to its factory, to be used for office, shipping and storage room.

All Milwaukee's Used Cars In One Big Show

To Run for a Week and Strong Effort to Be Made to Educate Public in Used Car Buying

MILWAUKEE, April 16—The Milwaukee Used Car Congress, probably the first organized exposition of used motor cars to be held in the United States, will be opened Friday evening, April 20, in the Auditorium under auspices of the Milwaukee Automobile Dealers, Inc., originator of the idea of presenting to the public under one roof all of the used cars taken in exchange or otherwise acquired by its members, who comprise practically every dealer of consequence in Milwaukee. The show ends April 26.

In the words of N. E. Osmond, head of the Wisconsin-Chalmers Co., the purpose of the show is:

"It will establish the used car where it belongs in the public mind—something always to be considered by a prudent purchaser."

A number of special committees have been appointed by the M. A. D. to handle details of the selling plan at the show. The first is an "inspection committee," which will see to it that every vehicle exhibited is in good mechanical condition and able to meet all claims of the seller. This committee consists of Frank J. Edwards, Kissel and Dodge distributor; A. J. March, Reo distributor; George W. Browne, Overland; Jesse A. Smith, Hudson, and Herbert W. Bonnell, Mitchell distributor.

A second body is the "adjustment committee," which is charged with the duty of arbitrating any and all disputes between seller and buyer and to see to it that every buyer receives absolutely a square deal. The members are: John G. Wolleager, Studebaker and Peerless; Walter H. Diener, Haynes and Grant; W. H. Krueger, Locomobile; F. W. B. Achen, Chardler, and R. C. Chidester, Packard.

The exhibitors will number about 25 dealers. The M. A. D. has a total membership of 45, but most of these are distributors and about one-half actually do a retail business in addition to handling wholesale sales. Wholesalers, naturally, are nearly immune from the used car evil.

The list of exhibitors at the used car show follows:

Frint Motor Car Co., Chalmers Wisconsin Co., Jesse A. Smith Auto Co., Curtis Auto Co., Diener-Nelson Co., Emil Estberg, Rademacher & Jaeger. King Motor Co., Mitchell Motor Co., Achen Motor Co., Motor Car Sales Co., Velie Motor Car Co., Kissel Kar Co., Jonas Auto Co., R. D. Rockstead, Edgar F. Sanger, Cole Motor Co., John G. Wolleager Co., Packard Motor Car Co., George W. Browne, Winton Co., and Hoppe-Hatten Motor Car Co.

Gasoline May Go Up as Touring Season Begins

Government Requirements Will Be Heavy, but Price Rise Is Not Held Due to the War

NEW YORK, April 14—Gasoline prices are expected to rise in the near future, irrespective of what effect the war may have on Government purchases. Domestic consumption of gasoline is not yet under the influences that operate during the later spring and summer months, when the use of gasoline for touring will be greatest. However, it is expected that there will be a large increase in consumption this year, while a further expansion of the gasoline output is problematical.

The entrance of the United States into the war is expected to have a very pronounced effect upon the petroleum situation, already made acute by the heavy drafts on consumption and the failure of field operators to develop any new sources of production that add anything material to the supply of crude oil.

It is expected that the government gasoline requirements will be heavy, especially in equipping the coast motor-boat patrol. Furthermore, strenuous efforts will be made to relieve the gasoline shortage abroad. These two influences are alone considered to be sufficient reason to warrant the expectation of an early and material rise in the price of gasoline.

Texas Expects Cheaper Gasoline

AUSTIN, April 14—If the price of gasoline continues to be governed by production and price of crude oil a reduction of the cost of motor fuel may be expected in the near future. It is significant that the credit balance quotations or the prices paid for crude oil at the wells by the purchasing companies in the different districts when not sold under contract show slight decreases in prices, due, it is stated, to the increase of production. The daily output of the Gulf coast oil fields is now about 85,000 barrels, which is greater than any time during the last 2 years. The prices for oil in these fields range from 90 cents to \$1.05 per barrel. The light crude oil of the North Texas fields is now selling for \$1.70 per barrel.

Pinkerton Heads Peoria

PEORIA, ILL., April 14—At the annual meeting and banquet this week of the Peoria Automobile and Accessory Dealers' Association officers were elected for the ensuing year as follows: President, H. B. Pinkerton; vice-president, C. E. Lyall; secretary, R. F. Fitch; treasurer, R. F. Graham; directors, C. E. Coyner, R. F. Graham, and C. E. Lyall. Reports from the annual motor car show were read and each exhibitor given a rebate for the amount of money ad-

vanced, the receipts covering the expenses. In the annual address of President Pinkerton, he urged the members to abandon Sunday demonstrations and efforts to sell cars on that day. He argued in favor of observing Sunday as a day of rest for dealers and employees alike. J. C. Thorp of Chicago, who organized the Illinois Trade Association, spoke of the value of co-operation and organized effort to promote the success of the industry. A number of new members were reported and the association was reported to be in a prosperous condition financially, with gratifying attendance at the various business meetings.

Rittman Gasoline Process to the People

WASHINGTON, D. C., April 14—Senator James of Kentucky has offered a resolution authorizing the Secretary of the Interior to assign the so-called Rittman process for improvement in the manufacture of gasoline to the people of the United States and to make the process immediately available for public use.

Price Changes

Detroit Electric Price Up \$100

DETROIT, April 14—The Anderson Electric Car Co. has increased the price of its models \$100 beginning to-day. This makes the new price of the model 68 four-passenger brougham \$1,875; model 66 duplex-drive, five-passenger, \$2,475; and the four-passenger single drive, \$2,375.

New International Truck Prices

NEW YORK, April 15—The International Motor Co. has revised prices on its trucks as follows:

	Old	New
1 ton.....	\$2,150	\$2,250
1½ "	2,500	2,700
2 "	2,800	2,900
3½ "	3,650	3,750
5½ "	4,250	4,500
7½ "	4,600	4,800

Westcott Prices Higher May 1

SPRINGFIELD, OHIO, April 14—The Westcott Motor Car Co. will advance its prices May 1. The four-passenger touring car will be increased from \$1,590 to \$1,790 and will be equipped with 35 x 4½ tires instead of 34 x 4, as at present. The seven-passenger touring car, now \$1,690, will be increased to \$1,790. The Springfield five-passenger touring Sedan will be increased from \$2,090 to \$2,290, and will include 35 x 4½-in. tires instead of 34 x 4, as at present. The seven-passenger Springfield touring Sedan will be increased from \$2,190 to \$2,290.

Buys Freight Cars So He Can Get Motor Cars

Chicago Oakland Distributor Forms Transportation Company and Operates Fast Service

CHICAGO, April 13—The acute shortage of freight cars has resulted in a rather unusual organization in Chicago, the Tennant Oakland Transportation Co. With its formation a dealer becomes the owner of railroad equipment in company with the meat packer and the fruit grower, who for a long time have owned their own freight cars to make prompt shipments of perishable goods possible. In the dealer's case it is different in that his shipment is not of perishable goods but of automobiles. He has the added advantage, however, in that the schedules available for perishable goods are available for his goods.

The transportation company has started with enough freight cars to insure a steady stream of Oaklands into the Chicago agency, the Tennant Oakland Co. The initial order was for forty, and since the declaration of war with Germany this number has been increased to fifty-five. The cars run in sections, and each section will make six round trips a month.

Briscoe Raises Prices

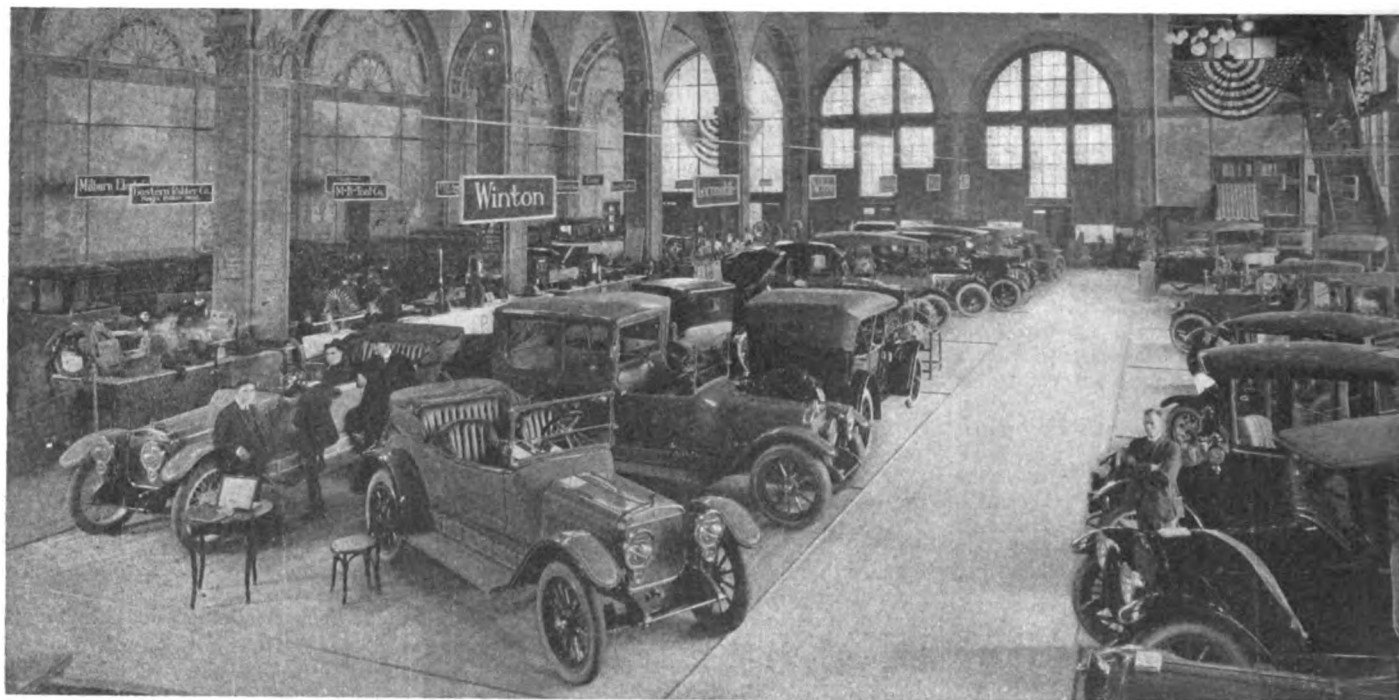
DETROIT, April 17—The Briscoe Motor Corp. has increased the prices of its cars as follows: Two- and four-passenger roadster from \$685 to \$725, open delivery car from \$700 to \$735, panel delivery body from \$725 to \$765. The new prices are effective May 1.

May Label Gasoline

CHICAGO, April 17—It is possible that the government may require that all gasoline be labeled. The Bureau of Standards of the Bureau of Mines, Washington, has practically completed its work of standardizing gasoline and Dr. Herbert C. Dickinson stated at the meeting of the Mid-West Section of the Society of Automobile Engineers, held last night at Chicago, that in all probability the bureau would suggest such labeling. It is proposed that fuel be classified and carry a label giving two figures, one the temperature at which a certain proportion, perhaps 20 per cent, will evaporate, and another at which perhaps 90 per cent evaporates. The meeting was attended by about 150 motor car, truck, tractor and oil engineers and was preceded by a dinner at the Chicago Automobile Club tendered by the Mid-West Section to President Dunham and the council of the society, now in session.

Jitneys For War Work

BRIDGEPORT, CONN., April 14—Bridgeport jitney operators to the number of nearly 400 have offered their services and their machines to the state in case they are needed to cope with trouble resulting from the war crisis.



Here is part of Garden Pier, where the Atlantic City show was staged

Atlantic City Show Sells One Car for Every 200 Visitors *Famous Summer Resort Draws from Wide Area*

ATLANTIC CITY, N. J., April 16—Although but 20,000 people attended the first annual spring automobile show, which closed last Saturday night on the Garden Pier after a two weeks' run, the sales were so good that the show was everywhere acclaimed a success.

The one big thing standing out in the final results was that everybody who attended the show was a potential buyer, the best evidence of which is contained in the fact that one car was sold for every 200 persons who attended. More than 100 cars, principally of high grade, were sold.

A feature which made the show virtually national in scope, and which serves to strengthen Atlantic City's reputation as the World's Playground, is that few if any of the cars that were sold were bought by people residing in this city. In addition to the cars sold a large number of prospects were secured. Six of these were secured in Canada, while others are from points throughout the country.

In view of this condition it may be said that the factories are deriving more benefit from the show than the dealers, although the latter consider themselves well repaid for the space taken.

The show was staged at this time of the year because of the class of people who come here at Easter. Being a more select class, there are more prospective

customers than during the heavy traffic months of July and August, when as many as 200,000 people visit the shore daily.

The population of Atlantic City is about 55,000, but owing to the heavy railroad traffic the annual business transacted is more than twice that of an average city of the same size. The average population, resident and transient, is 100,000, with the high-water mark in August, when it is almost 400,000. The number of visitors yearly is estimated at 20,000,000. From these figures it can be seen that the show is important from a national standpoint. Taking advantage of this there were exhibitors from this city, points throughout New Jersey, Philadelphia and New York.

Few Native Visitors

Unlike most shows, where the visitors are mainly from the city in which it is held, only about 10 per cent of the visitors to the Atlantic City show were from this city. The visitors may be classified in the following percentages, which represent estimates, as no accurate figures are available: 20 per cent from Philadelphia; 10 per cent from New York; 10 per cent from this city, and 60 per cent from other parts of this country and Canada. It was noted that several of the visitors were Europeans.

It was one of the surprising things of

the show that sales were so good in view of the varied attendance and the points from which they originated. This may be partly explained by the fact that people who come to this resort are usually prepared to spend money. Exhibitors generally were well satisfied with the results. This was so pronounced that a few dealers offered checks to secure the same space which they held for the show which will be held next spring.

When Manager Samuel W. Megill conceived the idea of a show he experienced the greatest difficulty in getting the dealers lined up. Next year he does not expect to have enough space to accommodate all those who want space. Attempts have already been made to secure reservations.

The space was sold at 25 and 35 cents per square foot, and was low because of the newness of the event. Accessory dealers paid \$50 per space regardless of size. This averaged about 80 ft. The showrooms, of which there were two, contained 36,300 ft., permitting broad aisles and wide spacing between cars. All of the members of the Atlantic City Automobile Trade Association took space.

Atlantic City has no industries except its hotels. All the money that is spent by the resident population originates in the hotels, the chief source of employment. It is for this reason that the

sales at the show were made to out-of-town buyers. There are 1200 hotels here, and their total valuation is estimated at \$60,000,000.

During the summer months the garage business here is one of the most flourishing, but trade, which is in repairs and accessories, is confined almost entirely to tourists. It is interesting to note the many license tags on the cars lined up against the curb of these establishments.

Sometimes as many as 10 States are represented at one time. Like the hotels, many of these garages close during the winter months, and their proprietors turn their attention to other lines of employment.

Although there are no industries here, the wealth of Atlantic City on the per capita basis is considerably above the average. It is estimated that if the wealth of the city were equitably dis-

tributed each person would be worth \$2,000. The deposits in the nine banks here are above the \$15,000,000 mark, and there is a combined surplus of over \$2,500,000.

There were 50 exhibitors at the show. Of these 37 were automobile dealers, six were truck dealers and 16 were accessory dealers. The number of cars on the floor was 125, representing most of the principal makes.

Trailers Quadruple Truck Capacity

Fruehaufs Convert a Truck Into a Tractor and Keep It Continuously Busy

FRUEHAUF trailers, built by the Fruehauf Trailer Co., Detroit, increase the load-haul capacity of a truck about four times. Furthermore, by the use of three trailers to each truck, one trailer is being loaded, one being hauled, and one being unloaded at the same time. This keeps the truck busy.

The Fruehauf is a semi-trailer, and the truck is converted into a tractor. This is done by attaching a Martin Rocking Fifth Wheel on the rear of the truck. If an old truck is used, the body is removed.

The Martin Fifth Wheel is a device that makes it possible for all six wheels of the truck and the trailer to conform to the unevenness of the road. A vertical hinged member is attached to the truck, and carries a pivoted platform that permits the trailer to rock on the truck.

Two standard models of the trailer are made. One is the 6-ton model, adaptable to 1-, 1½-, and 2-ton trucks, and the other is a 4-ton model to be used in connection with Ford converted trucks. Special models with special bodies may be made for any purpose.

The frame of the 6-ton model is 6 in. channel steel, 16 ft. long and 6 ft. wide. It is equipped with a stake body, the stakes being 32 in. high.

This body is carried on specially designed high carbon steel springs. The forward ends of the springs are secured by the regular eye and cross bolt, but the rear end rests on the lower part of the frame, and is free to work forward and back under the action of the springs.

Timken roller bearings are used in the wheels, which are of the artillery type, 36 x 6 in. The tires are either Firestone or Goodrich.

The 4-ton model, for converted Fords, is a smaller edition of the 6-ton model. The frame is 5 in. channel, having a 14 x 5½ ft. stake body, and 14 leaf springs.

In all models, the wheels are so placed that the largest part of the load is carried by the trailer. About one-third of the load rests on the rear end of the truck, this being sufficient to give traction.

At present, when three trailers are used with one truck, the front end of the trailer is raised from the truck by jacks when making a change. On some trucks a hoist driven by the truck engine is used. Special jacks are now being designed that will be part of the standard equipment of each trailer, and will facilitate the trailer change.

Los Angeles Association Growing

LOS ANGELES, April 14—In the 6 years of its existence, the Los Angeles Motor Car Dealers Association never has

occupied the position of strength and prominence that it has acquired recently. This is largely due to the get-together spirit that has been shown. The show last fall was the first link in the chain. On that occasion the association managed and controlled the show through its own membership and although the original charge for floor space was 40 cents per square foot the rebate reduced the cost to 3 cents. Realizing that in times of adversity there is strength in union, when the state legislature at its present session contemplated confiscatory legislation, the association admitted exclusive commercial car dealers to membership and helped raise the necessary fund to send legal counsel to the state capital and bring about a modification in bills in conformity to reason.

Garage Assists Uncle Sam

PEORIA, April 14—The Crown Auto Co. has posted the following notice in several conspicuous places in its garage. Already two of the company's employees have enlisted in Uncle Sam's Fighting forces.

"To All Employees:

"Any employee desiring to enlist either in the army or navy in the present crisis may do so with our full permission and the assurance of a position at the same remuneration as he is receiving at the present upon his return from service with honorable discharge. Crown Auto Co., Moutier Brothers."

Used Car Price Record

Look on Page 44



Above is the Fruehauf 6-ton unit, adaptable to 1-, 1½- and 2-ton trucks. At the right is the 4-ton unit. Imagine a Ford carrying a load like this



MOTOR WORLD

Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

MOTOR WORLD USED CAR PRICE RECORD has been received enthusiastically by dealers all over the country. Since the publication of the table last week hundreds of letters have come to Motor World in praise of the plan.

Dealers are entering whole-heartedly into the spirit of the plan. They are extending their co-operation frankly and gladly. They have placed their stamp of approval on our slogan, "Sane Allowances Based on Resale Prices" (see the cartoon on page 5).

In some few cases, dealers have not yet been won over to the sound business policy of Motor World USED CAR PRICE RECORD. They have not yet come to

realize the business advantage of the "open price" plan.

To these dealers Motor World can only say: If everyone knows what everyone else is getting for used cars everyone will make sane allowances. Foolish appraisals and big allowances based on guesswork will be cut out.

That, in brief, is the Motor World plan—a USED CAR PRICE RECORD giving the prices that used cars *have actually brought* in the open market in all the principal trade centers. The record is collected by Motor World Territorial Representatives every week—it is up-to-date and accurate.

THE figures in the tables are the prices brought by used cars sold during the past week. Most sales are quoted "As is." Where an asterisk (*) follows the price, it signifies the car has been overhauled; two asterisks (**) signify partial overhaul. Where more than one sale of a particular model has been reported, the prices have been averaged.

Albany

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
FORD—					
T	1915	200	....	....	....
T	1912	175	....	....	....
HAYNES—					
34	1916	1075%	....	....	....
HUPMOBILE—					
....	1916	850*	1100*	900*	....
....	1915	600	....	....	....
LOCOMOBILE—					
T	1912	400	....	....	....
MAXWELL—					
25	1915	360	....	....	....
STUDEBAKER—					
17-6	1916	....	900	....	....
....	1915	....	500*	....	....

Baltimore

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
37	1914	450	....	....	....
CHEVROLET—					
490	1915	375	....	325	....
FORD—					
T	1914	....	....	175	....
MAXWELL—					
25	1916	337	....	....	....
....	1915	325	....	....	....
OVERLAND—					
71	1914	300	....	250	....
....	1916	400	....	....	....
PAIGE—					
....	1912	100	....	....	....
STUDEBAKER—					
17-6	1916	....	550	....	....

Boston

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D44	1916	775	750	....	....
D54	1916	....	1000	900	....
C24	1915	500	....	350	....
C36	1916	525	....	500	....
C54	1915	....	750	700	....
D24	1914	350	....	300	....
B36	1914	325	....	350	....

BOSTON—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
B55	1914	475	....	....	....
CADILLAC—					
....	1916	1650	....	....	....
....	1915	1250	....	....	....
....	1914	600	650	....	....
....	1913	475	525	....	....
....	1912	300	....	....	....
CHEVROLET—					
H2	1916	450	....	....	....
490	1916	350	....	....	....
H2	1915	....	....	310	....
COLE—					
....	1915	400	....	....	....
DODGE—					
....	1916	500	....	....	....
....	1915	437	....	437	....
E.M.F.—					
....	1910	....	....	135	....
FORD—					
T	1917	....	....	350	....
T	1916	237	....	....	....
T	1915	200	....	....	....
T	1914	165	....	....	....
T	1912	....	....	165	....
FRANKLIN—					
....	1916	1400	....	....	....
HAYNES—					
....	1916	....	....	....	1150
HUPMOBILE—					
M	1916	850	....	....	....
....	1916	....	....	600	....
JEFFERY—					
....	1914	300	....	300	....
LENOX—					
....	1912	125	....	....	....
MARMON—					
34	1913	310	....	....	....
....	1911	125	....	....	....
MAXWELL—					
25	1916	425	....	....	....
25	1915	300	....	....	....
MERCER—					
....	1914	....	....	....	400†
MITCHELL—					
C42	1916	....	750	....	....
OAKLAND—					
32	1916	625	....	625	....
42	1913	275	....	....	....

BOSTON—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OLDSMOBILE—					
44	1916	850	....	850	....
43	1916	700	....	....	....
OVERLAND—					
75	1916	....	....	475	....
83	1916	425	....	....	....
79	1914	225	....	....	....
69	1913	75	....	....	....
PEERLESS—					
....	1914	450	....	....	....
PREMIER—					
....	1912	210	....	....	....
REGAL—					
....	1915	....	....	225	....
REO—					
6	1916	....	950	950	....
....	1913	325	....	....	....
SAXON—					
4	1915	....	....	187	....
SCRIPPS-BOOTH—					
....	1916	....	....	500	....
S. G. V.—					
....	1912	125	....	....	....
STUDEBAKER—					
17-6	1916	....	725	....	....
....	1914	....	....	375	....

†Four-passenger.

Brooklyn

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	675	....	675	....
C37	1915	500	....	....	....
BRISCOE—					
4	1916	450	....	....	....
....	1915	250	....	....	....
CADILLAC—					
....	1916	....	1350	....	....
....	1916	....	1575*	....	....
....	1914	525	....	....	....
CHALMERS—					
32B	1916	....	500	....	....
26	1915	450	....	....	....
32	1915	550	....	....	....
CHEVROLET—					
H2	1915	500	....	....	....
490	1915	375	....	....	....

BROOKLYN—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
DODGE—					
.....	1916	575			
.....	1915	450			
DORT—					
.....	1916	350			
.....	1915	250			
FRANKLIN—					
.....	1916	1300			
.....	1915	950			
.....	1914	750			
GRANT—					
6	1916	500			
HAYNES—					
.....	1916	950			
.....	1915	650			
.....	1914	300			
HUPMOBILE—					
N	1916	800	875	800	
.....	1915	525		500	
H	1914	475		475	
JEFFERY—					
4	1916	500			
6	1916	650			
4	1915	325			
MAXWELL—					
25	1916	300			
.....	1915	250			
OAKLAND—					
6	1916	550			
4	1916	600			
8	1916	1000			
4	1915	500			
MITCHELL—					
.....	1916	650			
.....	1915				
OLDSMOBILE—					
4	1916	600			
8	1916	800			
4	1915	425			
REO—					
4	1916	600			
6	1916		700		
4	1915	475			
6	1915		550		
SAXON—					
6	1916	450			
4	1916			215	
4	1915			175	
6	1915	375			
STUDEBAKER—					
17-4	1916	500			
17-6	1916	575			
6	1915	450			
4	1915	350			
6	1914	350			
4	1914	275			

Chicago

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE—					
.....	1916	400			
CASE—					
4	1915	700			
FORD—					
T	1916	275			
T	1913	100			
HAYNES—					
36	1916	1200			
22	1913	300			
21	1912	225			
GRANT—					
K	1917	775			
LOCOMOBILE—					
.....	1910	225			
MAXWELL—					
25	1915			325	
MITCHELL—					
JR	1917	900			
C42	1916		875		
B35	1915	550			
5-40	1913	350			
STUDEBAKER—					
4	1914	375			
WHITE—					
.....	1913	350			

Columbus, O.

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ALLEN—					
40	1916	375			
.....	1915	400			
BUICK—					
.....	1917	1050			
37	1915	400		350	
C25	1915	375			
29	1914	200			
17	1912	175			
CADILLAC—					
.....	1915		1250*		
.....	1914		750*		
.....	1913		650*		
CHALMERS—					
30	1912	200			

COLUMBUS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHANDLER—					
.....	1916	787			
CHEVROLET—					
H2	1916	550*			
H2	1915	500*			
COLE—					
8	1917		900		
.....	1916		750		
DETROITER—					
36	1915	325		250	
DODGE—					
.....	1916	475			
.....	1915	400			
FORD—					
T	1916	270			
T	1915	195			
T	1914	160			
T	1913	175			
FRANKLIN—					
.....	1916	1200			
HUDSON—					
SS	1916		1050		
.....	1916	800		800	
.....	1915	700		700	
.....	1914	600		600	
.....	1913	500		500	
MAXWELL—					
25	1917	550*		550*	
25	1916	450*			
25	1915	325			
OVERLAND—					
83	1916	500		385	
86	1916	800			
84	1916	900			
80	1915	550			
81	1915	400			
79	1914	350		325	
69	1913	230		225	
STUDEBAKER—					
.....	1915	450			
35	1913	280			
.....	1912	137			
WESTCOTT—					
.....	1915	700			

Denver

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1917	950			
CADILLAC—					
53	1916		1600		
51	1915		1300		
4	1912	450			
CHEVROLET—					
490	1916	450			
FORD—					
T	1916	330			
T	1915	325			
T	1914	250			
HUPMOBILE—					
N	1916	950			
MAXWELL—					
25	1916	475			
OVERLAND—					
83	1916			450	
79	1914	350			
69	1913	210			
SAXON—					
4	1916			350	
WILLYS-KNIGHT—					
84	1916	1016			

Des Moines

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHALMERS—					
6-30	1916			700	
26B	1915		700		
DODGE—					
.....	1916	600			
.....	1915	475			
E.M.F.—					
.....	1912	150			
HUDSON—					
SS	1916		1365		
6-40	1915		750		
6-54	1914		600		
6-54	1913		350		
20	1910			200	
OVERLAND—					
83	1916	450			
80	1915	450			
81	1915	450			

Detroit

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D44	1916			650*	
4	1915	350*			
CADILLAC—					
53	1916		800*		
4	1913	500†			
4	1912		250		

†Extra body.

DETROIT—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHALMERS—					
26B	1914		375		
DODGE—					
.....	1916	550**		525**	
.....	1915	450**		435**	
HUDSON—					
SS	1916		1100*		
6-54	1916		700*		
6-40	1916		750		
6-40	1915	625*	650*		
HUPMOBILE—					
32	1914	275		250	
MAXWELL—					
25	1916	395			
MITCHELL—					
A2-50	1914	370**			
OAKLAND—					
35	1916	500**			
.....	1914	325**			
OLDSMOBILE—					
44	1916		800		
43	1916		875*		
OVERLAND—					
86	1916		675		
81	1915	475*			
82	1915	325			
79	1914	200			
REO—					
4	1915	450*			
SAXON—					
S2	1916	400			
STUDEBAKER—					
17-6	1916		525*		
4	1915	400*			
4	1914	475**			

. Fargo, N. D.

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHEVROLET—					
490	1916	285			
FORD—					
T	1913	200		185	
PULLMAN—					
.....	1916	600**			

Hartford

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ALLEN—					
.....	1916	600			
BUICK—					
29	1912	225			
CADILLAC—					
8	1915		1250		
CHALMERS—					
.....	1916	650			
CHEVROLET—					
H2	1917	500			
490	1916	350			
H2	1913	250			
DODGE—					
.....	1916	450			
.....	1915	425			
FORD—					
T	1916	230		225	
T	1915			200	
DODGE—					
.....	1916	600			
MAXWELL—					
25	1916	350			
METZ—					
22	1916	400			
22	1915			225	
22	1914			150	
22	1912			115	
MITCHELL—					
6	1916		800		
OAKLAND—					
32	1916	625			
8	1916		675		
36	1914	375			

INDIANAPOLIS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
HAYNES—					
24	1913	275	....	....	....
HUDSON—					
SS	1917	....	1200	....	....
INTER-STATE—					
....	1915	450	....	....	....
MARMON—					
32	1911	325	....	....	....
NATIONAL—					
4-40	1914	250	....	....	....
OAKLAND—					
6	1916	560	....	....	....
4	1915	375	....	....	....
OVERLAND—					
83	1916	350	....	....	....
86	1916	850	....	....	....
75	1916	535	....	....	....
83	1916	465	....	....	....
80	1915	375	....	....	....
79	1914	295	....	....	....
69½	1913	245	....	....	....
PREMIER—					
....	1916	....	....	750	....
....	1913	....	200	....	....
REO—					
....	1914	375	....	....	....
SAXON—					
....	1917	500	....	....	....
STUDEBAKER—					
17-6	1917	....	750	....	....

Kansas City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
C36	1915	....	....	590*	....
....	1915	325*	....	....	....
CADILLAC—					
8	1915	....	1200*	....	....
....	1913	500	....	....	....
CHALMERS—					
18	1914	275*	....	....	....
DODGE—					
....	1917	725	....	....	....
....	1916	575**	....	....	....
....	1915	515*	....	....	....
FORD—					
T	1916	275*	....	....	....
T	1915	265*	....	....	....
T	1914	240*	....	200	....
T	1913	215	....	200	....
FRANKLIN—					
9	1917	1850	....	....	....
....	1914	675	....	....	....
HUDSON—					
6-40	1916	....	900	....	....
HUPMOBILE—					
....	1915	550*	....	....	....
32	1914	425	....	....	....
32	1912	250	....	....	....
JEFFERY—					
6	1916	....	900	....	....
6	1914	650*	....	....	....
KISSEL—					
4-32	1916	650	....	....	....
LEXINGTON—					
6L	1915	....	850	....	....
MAXWELL—					
25	1916	395	....	....	....
OAKLAND—					
32	1916	675	....	....	....
OVERLAND—					
83	1916	550*	....	....	....
86	1916	....	700*	....	....
83	1916	550*	....	....	....
75	1916	500*	....	....	....
69	1913	225*	....	....	....
PULLMAN—					
....	1915	367	....	....	....
REGAL—					
R	1915	....	....	400	....
REO—					
....	1914	475	....	....	....
....	1915	515	....	....	....
SAXON—					
6	1916	700	....	....	....
4	1916	....	....	275	....
STUDEBAKER—					
17-6	1917	....	900*	....	....
....	1914	350*	....	....	....
WILLYS-KNIGHT—					
84	1916	900*	....	....	....

Louisville

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
C37	1915	....	....	300	....
DODGE—					
....	1916	600	....	....	....
....	1915	475	....	....	....
FORD—					
T	1917	300	....	....	....
T	1916	275	....	....	....
T	1916	325*	....	....	....
T	1914	400†	....	....	....
T	1913	200	....	....	....
T	1912	235	....	....	....
†With starter.					
HUDSON—					
SS	1916	1150	....	....	....

LOUISVILLE—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
JEFFERY—					
4	1915	600	....	....	....
OAKLAND—					
37	1915	500	....	....	....
OVERLAND—					
81	1915	475	....	....	....
SAXON—					
S2	1916	600*	....	....	....
STUDEBAKER—					
20	1912	135	....	....	....

Milwaukee

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D44	1917	....	....	850	....
C25	1915	500*	....	....	....
CADILLAC—					
....	1914	....	750*	....	....
....	1911	350*	....	....	....
CHEVROLET—					
H2	1916	....	....	345*	....
E.M.F.—					
....	1912	275*	....	....	....
....	1911	125	....	....	....
FORD—					
T	1917	360†	....	....	....
T	1915	250*	....	....	....
HUDSON—					
....	1916	....	1250*	....	....
....	1914	....	600*	....	....
JEFFERY—					
6	1915	....	750*	....	....
4	1915	550	....	....	....
6	1915	600	....	....	....
MAXWELL—					
25	1916	420*	....	....	....
MITCHELL—					
B35	1915	550*	....	....	....
5-40	1913	300*	....	....	....
5-6	1912	250	....	....	....
OVERLAND—					
83	1916	500	....	....	....
86	1916	....	800	....	....
81	1915	425	....	....	....
80	1915	550	....	....	....
79	1914	400	....	....	....
REO—					
....	1916	....	875*	....	....
WHITE—					
....	1914	....	....	725*	....

†With starter.

Minneapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	775*	....	....	....
C36	1914	500*	....	....	....
CADILLAC—					
....	1913	500*	....	....	....
CHALMERS—					
....	1917	....	720	....	....
....	1914	....	412	....	....
....	1911	125	....	....	....
CHEVROLET—					
H2	1916	470*	....	....	....
H2	1915	....	....	475	....
DODGE—					
....	1916	600**	....	....	....
....	1915	500**	....	....	....
FORD—					
T	1917	....	....	355	....
T	1916	375	....	295	....
T	1915	250	....	....	....
T	1914	210	....	200	....
HUPMOBILE—					
32	1913	380*	....	....	....
20	1910	....	....	125	....
KING—					
D	1915	450	....	....	....
MAXWELL—					
25	1916	450	....	....	....
25	1915	325**	....	....	....
OVERLAND—					
75	1917	....	....	475	....
80	1916	425*	....	....	....
83	1916	550	....	....	....
69	1912	275	....	....	....
REO—					
R	1916	700	....	....	....
R	1914	400	....	....	....
S	1912	....	....	190	....
SAXON—					
S2	1916	650	....	....	....
....	1913	....	....	100	....
STUDEBAKER—					
17-6	1916	....	....	900	....
17-4	1916	....	700	....	....
4	1915	450	....	....	....
4	1914	400**	....	....	....

New York

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
APPERSON—					
....	1915	500	....	....	....
BRISCOE—					
....	1915	250	....	....	....

NEW YORK—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
C-37	1915	390	....	....	....
CADILLAC—					
....	1911	....	175	....	....
CHALMERS—					
35A	1916	700	....	....	....
32B	1916	....	650	....	....
32H	1916	700	....	....	....
24	1915	....	450	....	....
18	1913	300	....	....	....
CHEVROLET—					
H2	1916	500	....	....	....
H2	1915	425	....	....	....
490	1915	400	....	350	....
COLE—					
8	1916	....	650	....	....
4	1913	200	....	....	....
DODGE—					
....	1916	550	....	....	....
....	1915	300	....	....	....
DORT—					
....	1917	....	....	....	550
....	1915	500	....	....	....
HAYNES—					
36	1917	1200	....	....	....
28	1914	450	....	....	....
HUDSON—					
40	1916	....	1500*	....	....
SS	1916	....	1250*	....	....
6-40	1916	....	800*	....	....
6-40	1915	....	550	....	....
HUPMOBILE—					
N	1916	825	900	....	....
K	1915	550	....	....	....
32	1914	450*	....	400	....
32	1913	....	....	300*	....
20	1910	....	....	100	....
JEFFERY—					
6	1916	....	975*	....	....
KING—					
E	1916	....	1100	....	....
D	1915	775	....	....	....
C	1914	435	....	....	....
B	1913	380	....	....	....
KISSEL—					
6-38	1917	1500†	....	....	....
6-42	1916	850	1100†	....	....
4-36	1916	600	850†	....	....
4-32	1916	500	700†	....	....
6-42	1915	650	800†	....	....
4-36	1915	450	700†	....	....
†Detachable top,	five-passenger.				
MAXWELL—					
25	1917	450	....	450	....
....	1916	300	....	367	....
....	1915	300	....	....	....
MITCHELL—					
17	1917	....	950	....	....
....	1916	....	700	....	....
....	1915	....	500	....	....
....	1914	....	300	....	....
....	1913	....	175	....	....
OLDSMOBILE—					
43	1916	650	....	700	....
4	1916	725	....	750	....
55	1915	....	400	....	....
OVERLAND—					
85	1917	....	775*	....	....
86	1916	....	750*	....	....
75B	1916	440*	....	....	....
83R	1916	....	....	450*	....
84	1916	....	830*	....	....
83	1916	460*	....	450*	....
PAIGE—					
Frfrd	1916	....	800	....	....
REO—					
M6	1916	....	750	....	....
R4	1916	550	....	....	....
ST	1916	....	....	....	650
SAXON—					
S2	1916	600	....	550	....
14	1916	....	....	275	....
4	1915	....	....	185	....
SCRIPPS-BOOTH—					
....	1916	....	....	450†	....
....	1915	....	....	350	....
STUDEBAKER—					
17-6	1916	....	....	....	750
17-4	1916	....	675	....	....
6	1915	....	467	....	....
4	1915	....	425	....	....
35-4	1913	....	175	....	....
WILLYS-KNIGHT—					
....	1916	800	....	....	....

OMAHA—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
HUPMOBILE—					
32	1914	135	....	....	....
MAXWELL—					
25	1916	350	....	....	....
MITCHELL—					
4	1914	200	....	....	....
OVERLAND—					
83	1916	450	....	....	....
75	1916	....	....	450	....
STEARNS-KNIGHT—					
L4	1916	950	....	....	....
STUDEBAKER—					
4	1915	400	....	....	....

Peoria

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
FORD—					
T	1913	200	....	150	....
HUPMOBILE—					
K	1915	700	....	....	....
HA	1914	525	....	....	....
OVERLAND—					
75	1916	....	....	500	....
83	1916	....	....	550	....
79	1914	....	....	375	....

Philadelphia

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE—					
....	1915	325	....	325	....
BUICK—					
D44	1916	....	....	650	....
AB25	1914	350	....	....	....
FIAT—					
....	1916	....	....	3000	....
FORD—					
T	1915	243	....	....	....
OAKLAND—					
32	1916	600	....	....	....
OVERLAND—					
83	1916	250	....	....	....
75	1916	400	....	400	....
83	1916	500	....	....	....
PAIGE—					
....	1917	....	1315	....	....
Fitwd	1916	800	....	....	....
Prfd	1916	....	750	....	....
PULLMAN—					
....	1916	450	....	....	....
REO—					
R	1916	675	....	....	....
R	1915	550	....	....	....
R	1914	....	....	400	....
SCRIPPS-BOOTH—					
....	1915	....	....	387	....

Pittsburgh

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1917	1050	....	....	....
CADILLAC—					
4	1914	450	....	....	....
53	1916	....	1500	....	....
CHALMERS—					
6-30	1916	800*	....	....	....
CHANDLER—					
17	1917	....	1000**	....	....
16	1916	....	700**	....	....
CHEVROLET—					
H2½	1916	....	....	500	....
H2	1916	475	....	....	....
DODGE—					
....	1916	525	....	....	....
FORD—					
T	1916	225	....	....	....
HAYNES—					
....	1915	....	....	650	....
HUDSON—					
6-40	1915	....	700	....	....
6-40	1914	....	....	400	....
HUPMOBILE—					
....	1914	....	....	325	....
MERCER—					
M	1914	1025	....	....	....
OAKLAND—					
....	1914	350**	....	....	....
42	1913	300	....	....	....
OLDSMOBILE—					
43	1916	600	....	....	....
OVERLAND—					
83	1916	412**	....	....	....
....	1915	400	....	....	....
PAIGE—					
....	1916	....	850	....	....
PEERLESS—					
....	1914	....	250	....	....
PREMIER—					
6	1912	350	....	....	....
REO—					
....	1914	400**	....	....	....
SAXON—					
S2	1917	....	....	600	....
STUDEBAKER—					
17-4	1916	....	625	....	....
4	1915	450	....	....	....
4	1914	390	....	....	....
4	1913	250	....	....	....

Providence

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D44	1916	750*	....	....	750*
36	1915	500*	....	....	500*
24	1915	400	....	400*	....
CADILLAC—					
53	1916	....	1600*	....	....
51	1915	....	1100*	....	....
CHALMERS—					
6-40	1916	....	850	....	....
6-30	1916	850	....	....	....
CHANDLER—					
....	1916	....	1000**	....	1000**†
....	1915	....	700	....	700
COLE—					
8-50	....	....	1050	....	....
DODGE—					
....	1916	550	....	550	....
....	1915	450	....	450	....
FORD—					
T	1916	200*	....	175*	....
T	1915	170*	....	150*	....
HUDSON—					
6-40	1916	950	....	....	1000
HUPMOBILE—					
H	1916	....	800*	800*	....
....	1915	550*	....	500*	....
JEFFERY—					
4	1916	....	650**	....	....
KING—					
E	1916	....	1000*	....	....
D	1916	800*	....	....	....
MAXWELL—					
25	1916	475	....	....	....
MITCHELL—					
C12-1	1916	725*	....	....	....
6	1915	500*	....	....	....
OLDSMOBILE—					
43	1916	725*	800*	....	....
42	1915	425	....	....	....
OVERLAND—					
86	1916	....	700*	....	....
83	1916	500*	....	....	....
80	1915	500*	....	400*	....
PAIGE—					
6-46	1916	....	850*	....	....
STUDEBAKER—					
17-6	1916	....	900	....	....
†Four-passenger.					

St. Louis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	....	775	....	....
....	1915	475	....	325	....
CADILLAC—					
....	1913	....	....	400	....
CHALMERS—					
6-32	1917	....	900	....	....
....	1916	....	900*	....	....
....	1913	....	350*	....	....
DODGE—					
....	1915	475	....	....	....
FORD—					
T	1916	287	....	....	....
T	1915	250	....	....	....
HUDSON—					
6-54	1914	....	600	....	....
6-54	1913	....	550	....	....
OVERLAND—					
....	1916	....	475	....	....
REO—					
4	1912	200	....	....	....
SAXON—					
S	1916	600	....	420	....
VELIE—					
....	1916	....	750	....	....
6	1914	....	575*	....	....
4	1913	450*	....	....	....
W	1912	300**	....	....	....

San Francisco

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	900	....	900	....
C25	1915	550	....	500	....
C37	1915	650	....	650	....
CADILLAC—					
....	1915	1750	....	....	....
DODGE—					
....	1916	....	....	512	....
FORD—					
T	1915	265	....	....	....
T	1914	250	....	....	....
HUDSON—					
6-40	1916	....	750	....	....
6-40	1915	....	500	....	....
JEFFERY—					
....	1914	300	....	....	....
NATIONAL—					
6	1916	1295	....	....	....
OVERLAND—					
86	1916	850	....	....	....
83	1916	600	....	....	....
81	1915	375	....	....	....
80	1915	550	....	....	....
79	1914	....	....	400	....
STUDEBAKER—					
17-6	1916	....	850	....	....
17-4	1916	....	725	....	....
4	1915	450	....	....	....
4	1914	350	....	....	....

Seattle

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D44	1916	....	....	925	....
C24	1915	550	....	550	....
C36	1915	....	....	750	....
C25	1913	....	....	275	....
CHANDLER—					
17	1917	....	1325	....	....
FORD—					
T	1917	....	....	462	....
T	1914	267	....	....	....
DODGE—					
....	1916	650	....	....	....
HUPMOBILE—					
H	1914	625	....	....	....
KRIT—					
....	1914	200	....	....	....
MAXWELL—					
25	1916	575	....	....	....
25	1914	250	....	....	....
METZ—					
25	1916	516	....	....	....
25	1915	400	....	362	....
22	1914	....	....	175	....
OVERLAND—					
75	1916	525	....	....	....
86	1916	....	1000	....	....
85	1916	800	....	....	....
80	1915	....	....	550	....
59T	1912	175	....	....	....
PACKARD—					
38	1907	....	....	400	....
PULLMAN—					
....	1915	350	....	....	....
SAXON—					
....	1913	....	....	175	....
STUDEBAKER—					
17-6	1916	....	766	....	....
WILLYS-KNIGHT—					
84	1916	900	....	....	....

Syracuse

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
19	1912	150	....	....	....
CADILLAC—					
53	1916	1600*	....	....	....
51	1915	....	1200*	....	....
....	1914	700*	....	....	....
....	1911	250	....	....	....
....	1910	....	....	175	....
CASE—					
....	1914	425	....	....	....
CHALMERS—					
35 A	1916	850	....	....	....
CHEVROLET—					
H2	1917	550	....	....	....
HUDSON—					
....	1912	....	....	250	....
MARMON—					
34	1916	....	....	....	2250
41	1915	1300	....	....	....
MAXWELL—					
25	1912	200	....	....	....
MITCHELL—					
6	1916	....	900	....	....
OAKLAND—					
4-48	1912	....	400	....	....
OVERLAND—					
83	1916	500	....	....	....
75	1916	....	....	450	....
79	1914	400	....	....	....
PACKARD—					
1-38	1913	900	....	....	....
PAIGE—					
....	1916	....	675	....	....
R. C. H.—					
....	1913	250	....	....	....
REO—					
....	1914	500	....	....	....
....	1913	....	....	250	....
STUDEBAKER—					
6	1914	....	550	....	....

TOLEDO—Continued

Car & Model	Year	5-pas trunk	7-pas trunk	2-pas cabstr	3-pas cabstr
OVERLAND—					
86	1916	750*	750*	....	....
84B	1916	....	....	900*	....
83	1916	500*	....	....	....
83	1916	675*	....	....	....
80	1915	475*	....	....	....
82	1915	....	650	....	....
79	1914	300*	....	....	....
PAIGE—					
6-36	1915	325*	....	....	....
....	1914	350*	....	....	....
REO—					
S	1915	....	....	450*	....
S	1914	....	....	210	....
SAXON—					
S	1915	450	....	....	....
STUDEBAKER—					
17-4	1916	600*	....	....	....
17-6	1916	....	725	....	....
4	1915	500*	....	....	....
6	1914	....	575	....	....
4	1914	400	....	....	....
4	1913	225*	....	....	....
WILLYS-KNIGHT—					
K19	1915	....	850*	....	....

Kansas City Boasts Prosperity

KANSAS CITY, April 15—The Kansas City Motor Car Dealers' Association will hold this week a "Prosperity Dinner" at which speakers will explain why business in the Kansas City district may be expected to keep up to a high notch even though war should continue, and the conflict more seriously involve this country.

This will probably be the first of a series of such dinners, which are designed to offset a sentiment of discouragement, and a tendency to diminish efforts in certain industrial and commercial lines. The motor trade is taking the lead, chiefly because its exponents are in touch with a wider variety of business interests than almost any other, and are in a position to know that things are "going ahead" despite the war, or because of it, in the Kansas City territory.

Five More Champion Cars

TOLEDO, April 14—The delivery car method of distributing window displays and advertising matter from one end of the country to the other, adopted by the Champion Spark Plug Co. a few months ago, has proved so advantageous to its dealers that the company is adding five more cars to its fleet of five Overlands.

Packard Enlarges Dealer Service

DETROIT, April 15—The Packard Motor Car Co. has appointed three new district representatives, who will act under the supervision of the general sales department in giving attention to the needs and problems of dealers. They are: Walter F. Schmitt, formerly field representative, who will be district manager in territory west of the Mississippi, including Cincinnati and Memphis; O. E. Brown, east of the Mississippi except Cincinnati and Memphis; C. E. Morton, a section of the Pacific Coast not covered by Schmitt.

5,000,000 Lamp Order

CINCINNATI, April 13—The Corcoran-Victor Co. has received an order for 5,000,000 lamps from the Ford Motor Co., to be delivered between July, 1917, and July, 1918.

St. Louis Dealers Get
Rebate of 95% on ShowChecks Distributed at Meeting
Electing Schlecht New President—
To Teach Mechanics

ST. LOUIS, April 16—Joseph A. Schlecht, of the Mound City Auto and Buggy Co., for 2 years chairman of the Show Committee, was elected president of the St. Louis Automobile Manufacturers and Dealers Association without opposition at the April meeting. Other officers elected were: Vice-president, H. C. Fahrenkrog, Kardell Motor Co., treasurer, Herman L. Schnure of the Velie Automobile Co. Directors: F. W. A. Vesper of the Vesper-Buick Auto Co., H. W. Spalding of the Packard Missouri Motor Co., W. L. Johnson of the Johnson Automobile Co., Frank R. Tate of the Tate-Gilham Motor Car Co., J. D. Perry Lewis of the Lewis Automobile Co., I. G. McNiece of the Cadillac Automobile Co.

Chairman Schlecht read the report of the Show Committee, giving various statistics, but best of all, rebate checks for 95 per cent of the amount paid by the various exhibitors for space in the show. The space was bought at the rate of 40 cents a sq. ft. The committee reported that the attendance at 50 cents each this year was 26,827 as compared with 31,805 at 25 cents each last year and that the gate receipts were even heavier than this indicated as the exhibitors had no general gate tickets for distribution. There were 3029 out-of-town dealers at the show. A request of the educational director of the Y. M. C. A. for the establishment of a department for the automobile education of an industrial class was referred to a committee for investigation. It was estimated that such a department would cost about \$7,500. The instruction would be in mechanics, not driving.

Kanouse Fathers' Drive-Away

INDIANAPOLIS, April 12—The Kanouse Automobile Co., Inter-State distributor in this territory, staged a drive-away from the factory in Muncie last Saturday. The dealers went to Muncie Friday, remained over night, enjoyed a banquet and left early the next morning.

New Coast Form-a-Truck Company

LOS ANGELES, April 14—The Smith Motor Truck Corp. here has been succeeded by the Smith Form-a-Truck Co. under the ownership and direction of W. O. Gates and Leo L. Kelley. The local dealers have been apportioned as their territory southern California, two counties in northern California, southern Nevada and the entire state of Arizona. Gates and Kelley have been connected with the motor car industry here for 7 years and previously to that conducted the Broadway Motor Car Co., Denver. They have inaugurated an active sales

campaign by putting ten representatives in their outside territory and five salesmen in the city.

750 Tractors in Pennsylvania

HARRISBURG, PA., April 14—Approximately 750 tractors are now owned by Pennsylvania farmers, according to statistics gathered by the Pennsylvania State Agricultural Department. It is estimated that 250 tractors were sold by the various manufacturers last fall for spring delivery on Pennsylvania farms.

When the census was taken last November the reporters in 704 townships of the State reported 250 tractors. This same ratio in the missing townships would make a total of more than 500, and the number sold last fall would bring the number now in use up to 750. The late fall, when the farmer receives his money for his crops, proves the largest buying season.

International Adds to Plant

ALLENTOWN, PA., April 13—The International Motor Car Co. has awarded a contract for the erection of a one-story addition, 50 x 240, to be used as an assembling plant. The construction of the two extensions, 50 x 54, and 50 x 70, has been completed, the first to be used for machine work.

Erickson Makes a Truck

DETROIT, April 14—C. A. Erickson, former chief engineer of the Scripps-Booth Corp., is en route to Detroit from Warren, Pa., in a truck which he has designed, invented and manufactured, and which is driven through the front wheels. Erickson has been at work on the plans for more than eight years.

Los Angeles Plant for Republic

LOS ANGELES, April 14—The Republic Motor Truck Co., Alma, Mich., is seeking a site here for the erection of an assembly plant. It is planned to build 2000 trucks here the first year. Approximately 125 mechanics will be employed at the start. The truck units will be shipped here from Alma.

Bellefontaine and Economy Consolidate

BELLEFONTAINE, OHIO, April 14—The Bellefontaine Automobile Co. and the Economy Motor Co., Tiffin, Ohio, have consolidated. A. J. Miller is president and Fred C. Spittle is treasurer. For the present the manufacture of cars will be conducted in the Tiffin factory, but the plant will be moved to Bellefontaine as soon as possible, where new buildings are to be erected on land adjoining the present structure.

New Home for Allen

NEW YORK, April 15—The Allen Auto Specialties Co. will move into a new home May 1. The new address will be 16-24 West Sixty-first Street.

Buyer Gets Judgment for Delayed Delivery

Boston Dealer Must Pay Two-thirds of Agreed Price—Revision of Contracts Likely

BOSTON, April 14—A Boston dealer has been "stuck" in court for two-thirds of the price of a car which he failed to deliver on time. The action has thrown a scare into the whole row and a revision of contracts is not unlikely. The dealers believe the new ruling will make them liable for damages every time they don't deliver a car on schedule.

The decision was made by a jury before Judge Sisk in the Superior Court.

The facts as disclosed were that a man ordered a new car and he offered the dealer his old car in trade. The owner was to use the old car until the new car was ready for delivery. Then the dealer sold the old car to a man, specifying that it would be delivered on a certain date, the dealer figuring that he would have it soon.

But the new car did not get along in time. So the owner of the used car continued to use it. Meanwhile the man who had bought it had paid a deposit and signed a contract to accept it on the specified date, and when he could not get it he made a demand for it.

The dealer had to keep putting him off, as he was between two fires. He could not get the man who ordered the new car to give up the old car, and the buyer of the old car refused to take his deposit back, at first, but it was finally turned over to him.

Then he brought suit against the dealer for non-fulfillment of the contract, asserting that he had offered the balance of the price, but the car was not forthcoming.

The jury decided against the dealer and awarded damages for two-thirds of the price the man had agreed to pay for the car. A motion has been made to get a new trial to set aside the verdict.

Meanwhile some of the dealers, learning of the case, are revising their contracts on deliveries, for if the decision stands the buyer of any car new or used may bring suit if there is a delay unless some specific statement covers it in the bill of sale and delays have not been infrequent.

M. A. M. Plans Work Expansion

NEW YORK, April 16—The Motor and Accessory Manufacturers has just held one of the most enthusiastic meetings in its history. It recently laid plans for a more active line of work and at the meeting last Thursday, Friday and Saturday whipped these plans into shape.

One of the major innovations is the credit committee. It will act with the finance committee and will bring up-to-date the credit ratings on makers of cars, trucks, aeroplanes, motorcycles and bicycles. The credit committee henceforward will meet the second Thursday

of each month. The department will be expanded. A credit manager will be engaged.

The 1916 service of the credit bureau indicates the possibilities of service with an enlarged department. During 1916 44,985 reports were issued on 477 vehicle manufacturers. Reports on accessory makers, jobbers and dealers totaled 94,485, making the total credit reports 139,470. The department for the coming year will require \$10,000.

A committee, headed by C. W. Stiger, was named to enumerate the resources of the association for the purpose of government co-operation.

For the first time, a mid-season session will be held, Sept. 12-14, at Atlantic City. Increasing the membership will be considered at this meeting. The January meeting will be held as heretofore.

The M. A. M. has joined the Motor Transport Committee and will be represented there by E. H. Broadwell.

Plans are under way for grouping the members according to products.

The M. A. M. will lend its support to the S. A. E. and the A. A. A.

Seven new members were elected: Standard Steel Castings Co., Cleveland; Standard Woven Fabric Co., Walpole, Mass.; Jackson Cushion Spring Co., Jackson, Mich.; Jacobson Machine Mfg. Co., Warren, Pa.; National Malleable Castings Co., Cleveland; Merchant & Evans Co., Philadelphia; Weston Electrical Instrument Co., Newark, N. J. The Standard Roller Bearing Co., Philadelphia, and the Armour Curled Hair Works, Chicago, were reinstated.

Pierce-Arrow and White Truck Prices Raised

NEW YORK, April 17—Pierce-Arrow and White have both advanced truck prices to compensate for the higher level of costs. Pierce-Arrow has raised the price of the 2-ton truck from \$3,000 to \$3,300 and the 5-ton model from \$4,500 to \$5,000. White has advanced the price of the ¾-ton truck from \$2,100 to \$2,300, of the 1½-ton from \$3,000 to \$3,300, of the 3-ton from \$3,700 to \$4,100, and of the 5-ton from \$4,500 to \$5,000.

Maxwell Economy Day May 23

DETROIT, April 16—The Maxwell Motor Car Co. has fixed May 23 as national economy day when \$5,000 in cash prizes are to be distributed among dealers, together with the award of the National Maxwell Economy Championship Cup. Owners' cars only will be entered. Dealers must agree to arrange for the use of two Maxwell five-passenger touring cars now in owners' service and which he is to borrow for the day. The two cars will make the run together, each carrying four passengers, including the driver and three official observers. Two 1-gal. gasoline tanks will be provided each participant and will be attached to the windshield. Every report will bear the affidavits of the three observers. Prizes will be: first prize \$200 in gold, second prize \$150, third, fourth and fifth prizes \$100 each, sixth and seventh prizes, \$75 each, eighth, ninth and tenth prizes, \$50 each.

War Tax to Be Levied on Motor Vehicles

First Year's Returns, It Is Estimated, Will Net Government \$19,800,000

WASHINGTON, April 16—Special to MOTOR WORLD—Motor cars and trucks may be taxed to defray part of the war expense.

Secretary of the Treasury W. G. McAdoo, has formally recommended to Congress that motor vehicles be taxed as follows:

Selling Price	Tax
Under \$500	\$1
\$500 to \$750	2
\$750 to \$1,000	3
\$1,000 to \$1,500	5
\$1,500 to \$2,000	7
Over \$2,000	10

It is estimated that the returns from such a tax would give the government \$19,800,000 for the first year.

Other tax measures of interest to dealers and garagemen include a proposal to reduce the income tax exemption from \$3,000 for unmarried persons to \$1,500 and from \$4,000 for married persons to \$3,000. The super-taxes on incomes above \$3,000 would also be considerably increased.

It is also proposed to increase corporation taxes so as to bring in \$100,000,000 and to increase the excess profit tax by making the present law applicable to the calendar year of 1916.

Durant in Meeting

SAGINAW, MICH., April 16—A conference was held here late last week which was attended by W. C. Durant, W. L. Day, F. A. Whetten, M. L. Darton, W. W. Murphy and George Hannun. It is believed that this conference had to do with old Marquette plant.

Dort Increases Price \$30

FLINT, MICH., April 16—The Dort Motor Car Co. will increase the price of its cars effective April 25. The increase will amount to \$30, making the new price of the Dort touring car and the Dort three passenger roadster \$725.

Detroit as Airplane Center

DETROIT, April 14—The Aero Club of Michigan launched a campaign last night to make Detroit the chief center of the aviation industry in America and with the immediate object of promoting public interest in air transit and the manufacture of airplanes, of bringing a government school of aviation to Detroit, of securing an aviation field and of increasing the club's roster to 5000 or more. About 800 engineers, manufacturers, mechanics, and others accepted application blanks. G. Douglas Wardrop, editor of *Aerial Age*, discussed airplanes in Europe, and told of the important part they played in the war.

Specifications
of the
Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	B. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Delachable Top
ABBOTT	6-31x44	25.3 Remy	Stumb	Remy	DP 3 122	32x4	SS	1195	1250	1195	1495	1820	...	...	...	...	...
ALLEN	4-31x5	22.5 Weths	Stumb	Weths	C 3 112	32x3	SS	1985	885	...	1175	1195	1195	...	...	...	...
AMERICAN SIX	6-3 x5	21.6 G & D	Zenith	G & D	D 3 122	32x4	SS	...	1285	...	...	...	...	...	...	...	...
AMS-STERLING	4-31x44	15.6 Boech	Stumb	Boech	DP 3 110	30x3	SS	1275	1250	*1250	...	...	...	...	...	...	...
ANDERSON	6-31x44	25.4 Weths	Orn	Weths	DP 3 120	33x4	SS	1750	1600	1750	...	...	...	...	...	...	...
APPLETON	6-31x5	29.4 Remy	Radd	Bijur	DP 3 130	34x4	SS	2000	...	2000	...	...	...	...	...	...	...
AUBURN	8-31x5	31.2 Remy	Johnson	Bijur	DP 3 130	35x4	SS	1145	1145	1145	...	...	...	...	...	...	...
6-39	6-31x5	23.4 Remy	Radd	Remy	DP 3 120	34x4	SS	1145	1145	1145	...	...	...	...	...	...	...
6-44	6-31x5	29.4 Remy	Radd	Deleo	DP 3 131	35x4	SS	1135	1535	...	...	...	...	...	...	...	...
AUSTIN	6-31x5	23.4 Weths	Stumb	Weths	DP 3 120	32x4	SS	3750	3750	4000	4550	4650	5250	...	...	...	...
Hy-King	12-21x5	39.6 Deleo	Stumb	Deleo	D 6 142	34x4	QD	2200	2350	*2275	...	...	...	...	...	...	...
BIDDLE	4-31x44	22.5 Dixie	Zenith	G & D	DP 4 122	32x4	QD	...	1250	...	...	...	...	...	...	...	...
BOUR-DAVIS	6-31x44	25.3 Remy	Stumb	G & D	DP 3 118	32x4	QD	16500	...	...	...	...	...	...	...	...	...
BREWSTER	4-4 x5	25.6 Boech	Zenith	U.S.L. C	3 125	34x4	SS	685	...	...	...	...	...	...	...	...	...
BRISCOE	4-31x44	16.3 Conn	Mayer	Spitdorf	C 3 105	30x3	QD	1045	1045	...	...	...	...	...	...	...	...
8-38	8-3 x3	28.8 Remy	Zenith	Aplo	C 3 114	32x3	QD	1345	845	...	...	...	...	...	...	...	...
4-38	4-31x5	18.9 Remy	Mayer	Aplo	C 3 114	32x3	QD	660	675	...	...	...	...	...	...	...	...
BUICK	4-31x44	18.2 Deleo	Marvel	Deleo	C 3 106	31x4	C	1040	1070	...	11440	1835	...	...	...	...	...
D 4-34-35	4-31x44	25.3 Deleo	Marvel	Deleo	C 3 115	34x4	SS	1250	1250	1350	1625	1850	2550	...	...	...	...
6-44-47	6-31x44	27.3 Deleo	Marvel	Deleo	DD 3 124	34x4	SS	12240	...	2240	2960	...	3760	2835	...	...	...
E-49	6-31x44	27.3 Deleo	Marvel	Deleo	DD 3 124	34x4	SS	11100	...	1100	...	...	...	...	...	...	...
CADILLAC	8-31x5	31.2 Deleo	Orn	Deleo	D 3 132	37x5	SS	1250	1250	1350	1625	1850	2550	...	...	...	...
55	8-31x5	31.2 Deleo	Orn	Deleo	D 3 132	37x5	SS	1250	1250	1350	1625	1850	2550	...	...	...	...
CASE	4-31x5	21.0 Conn	Radd	A-Lite	C 3 120	34x4	QD	11395	...	1395	1995	1995	2695	1995	...	...	...
CHALMERS	4-31x5	25.4 Remy	Stumb	Weths	DP 3 115	32x4	SS	1250	1250	1350	1625	1850	2550	...	...	...	...
6-30	6-31x44	25.4 Remy	Stumb	Weths	DP 3 115	32x4	SS	1250	1250	1350	1625	1850	2550	...	...	...	...
CHANDLER	6-31x5	27.3 Boech	Radd	G & D	D 3 123	34x4	SS	11395	...	1395	1995	1995	2695	1995	...	...	...
CHEVROLET	4-31x44	21.7 Conn	Zenith	A-Lite	C 3 102	30x3	C	535	550	...	...	...	...	...	...	...	...
4-40	4-31x44	21.7 Conn	Zenith	A-Lite	C 3 108	32x3	SS	800	800	...	...	...	...	...	...	...	...
F-72	4-31x44	21.7 Conn	Zenith	A-Lite	C 3 120	34x4	SS	1385	1385	1385	...	...	...	...	...	...	...
6-45	6-31x44	25.3 Conn	Ball	A-Lite	D 3 119	33x4	SS	11250	1250	...	1525	...	1550	...	...	...	...
DISPATCH	4-31x5	27.5 Boech	Radd	U.S.L. D	4 120	36x3	QD	1135	...	1210	1400	...	...	...	...	...	...
DIXIE FLYER	4-31x5	16.9 Conn	Cartier	Dyneto	C 3 112	32x3	SS	...	815	2500	...	...	...	...	...	...	...
DOBLE	2-27 1/2 double-acting steam engine.	Boiler pressure 600-lb.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
DODGE BROTHERS	4-31x44	24 Deleo	Stewart	N.E.	D 3 114	32x3	S	835	835	...	1265	1265	...	1000	...	...	...
DORRIS	6-4 x5	38.4 Boech	Stumb	Weths	D 8 108	36x4	SS	...	...	2475	3250	3350	3675	...	...	...	...
1-56	4-31x5	16.9 Conn	Cartier	Weths	C 3 105	30x3	QD	1695	685	...	...	1065	...	...	...	...	...
DORT	4-31x5	16.9 Conn	Cartier	Weths	C 3 105	30x3	QD	1695	685	...	...	1065	...	...	...	...	...

PAJOR	6-3125	22.4	Remy	Radf	G & D	D	3 117	3244	SS	11775	11775	11775	1775
	6-3125	20.4	Remy	Radf	G & D	D	3 127	35544	SS	11685	11685	11685	2300
PARTIN-PALMER	4-3124	15.6	Conn	Schebler	A-C	DD	3 96	30243	C	645	645	645	645
	4-3125	19.6	Conn	Carter	Dioco	DD	3 110	32343	C	645	645	645	645
PATERSON	6-3124	25.4	Deleo	Stunbg	Deleo	C	3 117	3244	C	11195	11195	11195	1195
	6-3125	23.4	Deleo	Stunbg	Deleo	DD	3 135	35545	SS	3250	3250	3250	3250
PATHINDER	6-3125	33.8	A-Kent	Special	A-Lite	DD	3 125	35544	SS	12090	12090	12090	2990
	6-3125	38.4	Boech	Own	Wetha	C	4 134	36444	QDC	4800	4800	4800	5900
PERLESS	6-3125	43.6	Boech	Own	Wetha	C	4 142	37454	QDC	5400	5400	5400	6800
	6-3125	48.6	Boech	Own	Wetha	C	4 147	38454	QDC	16400	16400	16400	7800
PIECE-ARROW	6-3125	23.4	Deleo	Thlen	Deleo	DP	3 119	3244	SS	11200	11200	11200	1200
	6-3125	27.3	Deleo	Johnson	Deleo	DP	3 1254	35544	SS	11895	11895	11895	2900
PRINCESS	4-3124	22.5	Splidorf	Schebler	Dioco	D	3 108	32243	....	775	775	775	775
	4-3124	22.5	Dirie	Stunbg	Splidorf	D	3 114	3144	SS	860	860	860	1960
PULLMAN	4-3124	19.6	A-Kent	Carter	A-Lite	C	3 108	30243	DC	745	745	745	745
	8-3124	28.8	....	Johnson	Dyeco	C	3 115	3344	SS	1200	1200	1200	1200
REGAL	6-3125	43.3	Deleo	Radf	Deleo	C	4 133	36444	SS	12660	12660	12660	2960
	6-3125	30.4	Remy	Radf	Remy	DD	3 126	34444	SS	11250	11250	11250	1750
ROAMER	4-3124	27.2	Remy	Johnson	Remy	DD	3 116	3444	SS	3275	3275	3275	875
	6-3125	23.4	Boech	Stunbg	Bijur	D	3 127	3444	SS	2150	2150	2150	1850
ROSS	8-3125	33.8	A-Kent	Zenith	W-Land	DD	3 130	35444	SS	11550	11550	11550	1550
	4-2124	12.1	A-Kent	Rebb	Wagner	DD	3 96	30243	DC	495	495	495	495
SAXON	6-2124	19.8	Remy	Stunbg	Wagner	DD	3 112	32444	SS	11285	11285	11285	2575
	8-2124	22.0	Remy	Zenith	Wagner	DD	3 120	3244	SS	565	565	565	565
SCRIPPS-BOOTH	6-3124	24.5	Remy	Zenith	Remy	C	3 110	30243	C	11150	11150	11150	1150
	6-3124	24.5	Remy	Zenith	Remy	C	3 110	30243	C	11150	11150	11150	1150
SIMPLEX	6-4124	45.9	Eliann	Nremb	Boech	D	4 143	37454	QDC	Chassis	6000	6000	6000
	6-4124	38.4	Boech	Radf	Wetha	DD	4 136	3545	QD	3800	13800	3800	4750
SINGER	8-3125	33.8	Splidorf	Zenith	Aploco	D	3 127	35444	....	11960	11960	11960	2500
	6-3125	22.5	Remy	Schebler	Wetha	DD	3 119	3444	QDC	111495	11495	11495	2900
STANDARD	8-3125	33.8	Remy	Radf	Wetha	DD	3 123	35444	QDC	12250	12250	12250	3500
	6-3125	25.3	Conn	Zenith	A-Lite	DD	3 115	3244	....	11150	11150	11150	1150
STANLEY	4-3125	22.5	Remy	Schebler	Wetha	DD	3 119	3444	QDC	111495	11495	11495	2900
	8-3125	33.8	Remy	Radf	Wetha	DD	3 123	35444	QDC	12250	12250	12250	3500
STEARNS	6-3125	25.3	Conn	Zenith	A-Lite	DD	3 115	3244	....	11150	11150	11150	1150
	6-3125	24.0	Remy	Schebler	Wagner	C	3 112	3444	SS	11250	11250	11250	1550
STEPHENS	4-3125	24.0	Remy	Schebler	Wagner	C	3 112	3444	SS	11250	11250	11250	1550
	6-3125	36.32	Remy	Schebler	Wagner	C	3 120	3444	SS	2375	12550	2350	2390
STUDEBAKER	4-3125	36.1	Boech	Stunbg	Remy	C	3 130	3444	SS	11145	1095	1145	1295
	6-3125	23.4	Remy	Radf	Remy	DP	3 116	3444	SS	1115	1135	1135	1685
SUN	6-3125	25.3	Remy	Stunbg	Remy	DP	3 115	3244	SS	1600	1600	1600	1600
	6-3125	29.4	Remy	Stunbg	Remy	DP	3 124	35444	SS	11790	1790	1790	2290
VELIE	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
WESTCOTT	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
WHITE	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
WILLIAMS-KNIGHT	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
WINTON	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
YOUNG	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290
	6-3125	29.4	Remy	Stunbg	Remy	DP	3 125	35444	SS	11790	1790	1790	2290

ABBREVIATIONS—"A.C." Allis-Chalmers, "Atz" Atomizer, "Reb" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—37"x33½" means that the rear tires are 37x3½, and the front are smaller. Detachable top, 300x, means \$300 extra.

Ford Change in Baltimore

BALTIMORE, April 16—E. T. Backus, who first opened a Ford branch here, has purchased the Ford lease for the branch at 10 to 20 East North Avenue, and will in future operate the plant as one of the Ford branches, to be known as the Backus Motor Co. Just how the Baltimore details will be handled is a question that the eleven other dealers would like to know about. A. A. Grisham, who became manager when Backus left for Detroit to become one of the three special assistants to Sales Manager Hawkins, declined to make any announcement. Neither would Backus, who, with his brother, F. C. Backus, form the new firm, make any statement. The Baltimore territory will more than likely come under Philadelphia, which is a large assembling plant. Alexander McGill, formerly head of the service school at Detroit, will have charge of the service department of the Backus plant.

Botterill Takes on Doble Steamer

DENVER, COL., April 14—Tom Botterill, veteran motor car dealer in the Rocky Mountain territory, where he is Pierce and Hudson distributor for four states and Dodge agent for Denver and vicinity, has secured the distributing agency on the new Doble steam car for Colorado, Wyoming, Utah and Idaho. The last two states will be supplied from his Salt Lake City branch, known as the

Tom Botterill Automobile Co. and managed by his brother, Frank Botterill.

Special Train for Jobbers

CHICAGO, April 17—Mid-western members of the National Association of Automobile Accessory Jobbers will have a special train from Chicago direct to Hot Springs, Va, to the next meeting, June 4, 5 and 6.

The train leaves Chicago May 29, several days before the general sessions open, but it seems to be the desire of many to be able to spend several days at play before the days of convention work begin. The train arrives the 30th, which is a holiday, at 11 a.m. Through tickets from all points will be honored on the special.

It is expected that more women than ever will attend the Hot Springs meeting. A number attended the Hot Springs gathering a year ago. Special entertainment has been arranged for them.

ship Congress to be held in Detroit June 10-14.

Rubber Men Appoint Committee

WASHINGTON, D. C., April 13—Rubber producers and manufacturers will be called upon to co-operate fully with the Government in meeting wartime needs. The following committee to carry out this purpose has been appointed: A. Marks, Diamond Rubber Co.; Fred Hood, Hood Rubber Co.; Stuart Hotchkiss, General Rubber Co. This committee will have charge of obtaining for the Government a speedy and adequate supply of rubber. An agreement has been reached with the copper and steel producers under which the Government is guaranteed all these materials it may require for war purposes at a price far below the prevailing market price. A similar agreement with the rubber men is foreshadowed in to-day's announcement.

Salesmanship Congress June 10-14

DETROIT, April 17—The second annual meeting of the World's Salesmanship Congress, formed here a year ago, will be held in this city June 10-14. At last year's meeting about 3000 were present, and it is expected the number this year will reach 7500.

NEW YORK, April 16—The Salesmanship Club of New York plans to run a Club Special to the World's Salesman-

Newtone Plant is Sold

BROOKLYN, N. Y., April 13—The plant of the Automobile Supply Mfg. Co., maker of the Newtone horn, has been sold to Louis Leavitt, a Brooklyn paint manufacturer, who paid \$137,500 plus incidental expenses. It is not known whether the plant will be continued as a going concern. A receiver was appointed the latter part of March, the company putting plant, materials and good-will on the block.

Coming—THE SHOW CALENDAR—Events

Milwaukee, Wis.	First Annual Used Car, Milwaukee Automobile Dealers, Inc., Auditorium; Bart J. Ruddle, Mgr.	April 20-26
Chicago, Ill.	Used Car Show, Coliseum, Chicago Automobile Trade Assn.	May 5-13
Montreal, Can.	Used Car Show, Coliseum, Montreal Automobile Trade Assn., Ltd., T. C. Kirby, Mgr.	May 26-June 2
Spokane, Wash.	Interstate Fair	Sept. 2-9
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C.	Carnival and Open House, Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Los Angeles, Cal.	Los Angeles to Salt Lake City, Utah.	April
Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 19
Cincinnati, O.	260-mile Race.	May 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.	Championship	June 9
Cincinnati, O.	Race.	June 23
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.	Championship	July 4

Tacoma, Wash.	Championship	July 4
Visalia, Cal.	Road Race.	July 4
Spokane.	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.	Hill Climb	July 14
Des Moines, Ia.	Championship	July 14
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.	Intercity Reliability	July 17-19
Intercity Reliability.	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Flemington, N. J.	Track Race	Aug. 17
Elgin, Ill.	Road Race	Aug. 18
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb	Sept. 8
Providence, R. I.	Championship	Sept. 15
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
New York.	Speedway Races	Sept. 29
New York, N. Y.	Championship	Sept. 29
Uniontown, Pa.	Speedway Races	Sept. 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.	Race	Oct. 13
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13
New York, N. Y.	Race	Oct. 27

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 4

New York, April 25, 1917

Twenty-five cents a copy
Two dollars a year

Can You Look Ahead

*to a certain future—to greater
profits like Hudson Dealers can?*

Does the car you sell offer you the right kind of a future? The opportunity to grow, to make money this year and the next? Can you, like Hudson dealers, see years of profits ahead?

In the early days of the automobile business many cars were started with a blue-print, a printed sales and advertising plan. Broad promises were made to secure dealers. Sometimes the cars were never built. It was necessary in those days for dealers to shift from car to car. What profits they did make in one season were generally used up in the next.

But mark the history of Hudson dealers. How few the changes. How permanent their business. All of these years have been money making years for Hudson dealers.

If you will look about, you will generally find that the leading automobile merchant in your community sells Hudsons. He shares the reputation for stability that Hudson enjoys. He knows that every contract he makes with Hudson is another step toward a greater future.

Once in a while circumstances compel us to make a change in our representation, or territory is divided and new dealers are added. Those dealers who would some day like to be a part of the Hudson organization are requested to send us their names. We want to know every real automobile merchant.



HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN

Hudson Super-Six the largest selling fine car in the world



Van Sicklen

ELGIN

SPEEDMETERS

Built to the Quality Standards of the Elgin Watch by Elgin Watchmakers

Service Stations in practically every City in which VAN SICKLEN equipped cars are marketed.

*The Van Sicklen Company
Elgin Illinois*

MOTOR WORLD

DEALERS, JOBBERS, GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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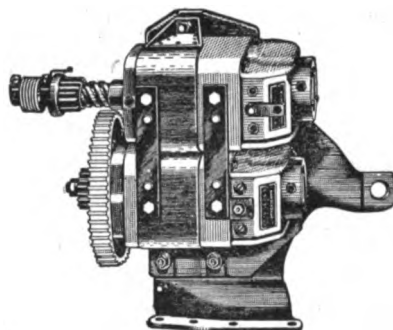
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F. O. B. BOSTON

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CANADA UNIVERSAL CAR AGENCY, WINDSOR, ONT.

◆
GRAY & DAVIS, Inc., Boston, Mass.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, April 25, 1917

No. 4

Sane Patriotism

“Business as Usual”

Your Country Wants You to Be Cool-headed
And It Wants You to Be Patriotic

*Your Country Needs Sane Patriotism and the Motor Trade Is in
Position to Point the Way to the Whole Nation*

GREAT harm can be done by insane patriotism. way, and what America most needs right now is a welling up of intense patriotism in the

There have been scares and wild tales without adequate foundation. Because of these sensationalisms money in some sections has tightened, business has pulled in its horns. hearts of the people—and *sanity*.

All this has tended to demoralize business—and *there was no need for it at all.*

America *does* need earnestness of heart among all the people, from the shepherd of Montana to the banker of Wall Street, but this does *not* mean that we should conjure up wild dreams out of our imaginations and then frighten ourselves with the dream-thing we have created.

The nation is proceeding with the organization of its resources. Every problem is being approached in a sane

We should shake off our lethargy, wake up, remember that America is in the greatest conflict the world has ever known

and is fighting—in the last analysis—that we may continue OUR democracy and continue to enjoy OUR rights and OUR happiness, as we have continued for more than 100 years.

To-day we are not fighting to repel invasion by a war lord. We are fighting to repel the invasion that might come 30 years from now. We are saving our country for our children and also for our children's children.

All this means that we must stand ready and willing to do our bit. We must get rid of the



Howard E. Coffin

Advocate of Sane Patriotism

Chairman, Industrial Preparedness Committee of the Council of National Defense, and Vice-president of the Hudson Motor Car Co., to whom the nation looks for inspiration in the mobilization of its great industrial resources

idea that there is nothing to be accomplished.

Maybe our bit consists in guiding a tractor over the prairies of the Dakotas. Not a very inspiring job, is it? No; but it's *sane patriotism*.

Maybe our bit is running a loom in a New England mill in order that the stream of clothing may continue undiminished. Not much hurrah and flag-waving about that, is there? No; but it's SANE PATRIOTISM.

Maybe our bit is sticking to business, talking hysteria down and patriotism up and working for "Business as Usual." This is the height of SANE PATRIOTISM even if there is no music, no flag-waving, no cheers, no glory, no heroism.

The war isn't very real to some people, because we went into it so calmly and slowly. *But it's a real war just the same.*

And to some others the idea of patriotism means loud shouting, agitation, wild alarm and hysteria.

We should be *sane*.

The motor trade is in an excellent position to show the nation what sane and earnest patriotism means, because the eye of the public has been on the motor trade ever since it began and when the motor trade does anything every one looks and listens and is influenced.

Let us cite an example:

In Kansas and Western Missouri hysteria and scares ran riot. The newspapers went off half-cocked and alarmed the public. There was a food scare. The country banks tightened their automobile credits. One of the most important and most prosperous parts of America was on the verge of a panic because of needless and unfounded scares and hysteria.

What happened?

The Kansas City Motor Car Dealers Association took the situation by the horns and said, "Stop!" It sold itself on the soundness of the country and the insanity of the local situation. Then it set out to sell the public.

A big motor trade dinner was held at the Baltimore Hotel. More than 300 salesmen were present. The slogan of the meeting was "Business as Usual."

Speakers told of the prosperity of the Kansas City district; that there is now plenty of money in this country; that industry has been increasing and should logically continue to increase, war or no war; that Kansas City is still in the swing of coming business and that the business man who hesitates will surely miss an opportunity and fall behind the parade.

The salesmen were impressed. They went out of the meeting, 300 missionaries of SANE PATRIOTISM.

What is the result?

The Rotary Club and the Co-operative Clubs are planning similar meetings. The business of the city has dropped its worried look. It has shaken off the scare and is going ahead again. Banks are back of the Big Idea. The public is regaining confidence, and the whole big agricultural area is coming back into a state of sanity and is developing patriotic earnestness.

The motor trade pointed the way in Kansas City—and can do it anywhere.

It not only CAN do, but it is its duty to do it.

It is characteristic of the people and of business that panics are often brought about by the people themselves. The people stop. If they didn't stop there would be no panic.

And that seems to be the situation right now. There is no need for a stoppage of business or for food scares or other hysteria. If a few cool-headed men in every community will only point the way it will restore confidence where confidence needs restoration.

As to food, don't get scared. If in doubt as to what to do plant a garden and occupy your mind with that. Or if you're a farmer raise a lot of produce and grain. There seems every prospect that it won't become a non-moving asset.

And so, you motor car men all over America, get into this thing on both feet—and keep your feet on the ground.

As a starter, take an active interest in things.

Realize that you have a part to play in this big war, and if you don't know your part you

will some day. Right now your part is to make "Business as Usual" and endeavor to make all those with whom you come in contact SANELY PATRIOTIC.

If there is a place for a motor reserve of some kind, form one. If the authorities tell you there is no need for one, forget it.

If your trade association wants to help let it send some one capable man to the right source of information and find out HOW you can help. Don't go running around in a circle on some plan that isn't going to be of service.

The energies of America are enormous, but we don't want them wasted.

One need right now is for the passage of the President's army bill. Some of our debating legislators in Congress seem to think more of their own pet opinions than they do of the wel-

fare of the nation, and the nation is a hundred million YOUs.

If one of these petty, little, block-the-wheels gentlemen hails from your part of the world send him a telegram and tell him to get the moss out of his hair and learn that war was declared some three weeks ago. And get as many others as you can to telegraph him. Wake them up. You men can do it.

Hold a "Business as Usual" meeting, as did Kansas City. Let your "Business as Usual" talks include one on "Patriotism," but let the majority be on SANE PATRIOTISM.

This issue of Motor World will be read by perhaps 100,000 men. If each one of them becomes a missionary of SANE PATRIOTISM it will make the motor trade America's mainspring and balance wheel in her hour of need.

Special Features

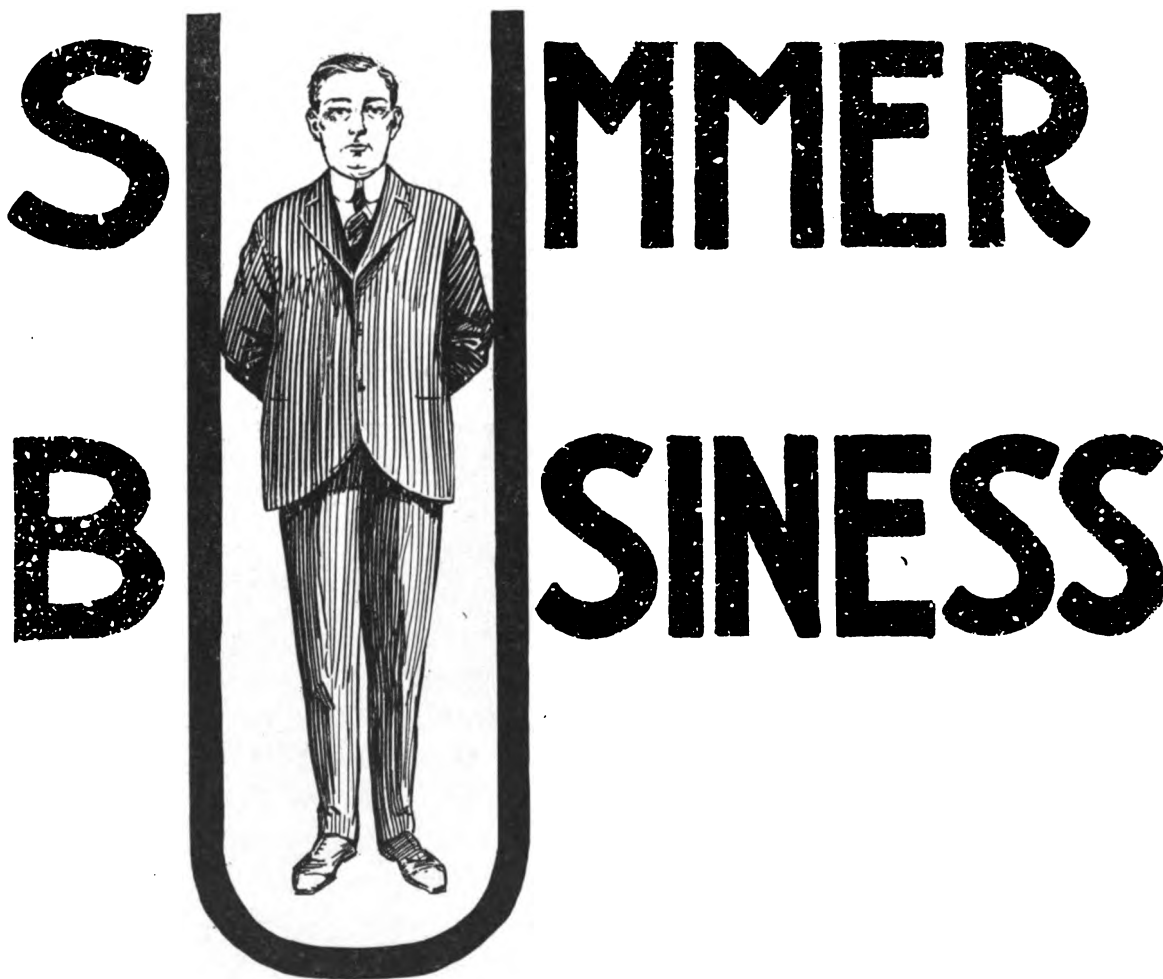
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This Is the First Page of the
Summer Merchandising Number
of Motor World

Mostly U



YOU are the secret of your own success. Summer will drive trade your way and all nature will help to place wondrous profits within your grasp—but the secret of **YOUR** summer business is mostly **YOU**. **YOU** can cast a blight upon the golden harvest. Or, you can reach out and turn the gleaming prospects into gold. How is the **U** in your business? Take the ideas in this issue of Motor World and make the **YOU** the key to bigger Summer Profits than you ever had before.

Get All of Your Share

Be a Go-Getter

Why This Number Was Printed

THIS is the Summer Merchandising Number of Motor World—the first ever printed by any motor trade paper. It appears just as the rush of summer business is getting under way. Why should it be necessary to say anything about merchandising at a time when business is so good?

That's just the point.

When business is good we are likely to get careless.

We are likely to grab around after what drifts in the door and not get **ALL OF OUR SHARE**.

Summer drives the car buyers and motorists down the Motor Rows of America and they buy cars and accessories and want service. If you sit in your door and do nothing but hold out your hat you will get **SOME** business. But you won't get **ALL** of **YOUR** share.

You should go after the maximum of business instead of being content with what is brought to you by the weather and conditions. If your business-machine has the capacity for grinding out \$50,000 worth of business and you don't make it grind out more than \$30,000 you are not **GETTING ALL OF YOUR SHARE**.

The mere fact that some other dealer or garageman has repainted and rebuilt the front of his building may be enticing business his way. Are you going to sit idly by and let him get away with it? Or are you going to rise up in your might as a merchandiser and challenge his right to what belongs to **YOU**?

This is fair competition. Don't be underhanded. Just be aggressive. The man who doesn't **GO AFTER** business doesn't deserve much. Remember that! And the man who is clean, aggressive and a hard fighter is liked rather than disliked by his competitors. Everybody likes a clean fighter.

And this Summer Merchandising Number is for the purpose of putting fighting blood into your veins and fighting weapons into your hands.

No matter who you are—garageman, dealer, distributor, salesman, mechanic—determine that this season is going to see you as a fighter, a Go-Getter, a man who is not waiting for Fortune to cast things into his lap but who is up on his toes **GETTING ALL OF HIS SHARE**.

Be a Mer

You Must Be

GET ALL OF

What Is a Merchandiser ?

A **MERCHANDISER** is a man who legitimately takes advantage of every opportunity for selling goods, service or himself. He also creates opportunities that he may take advantage of them.

REGARDLESS of what dictionaries may say, we have made our own definition of "merchandiser." The man who merely *supplies demand* is not a merchandiser of the **MOTOR WORLD** kind, although he might get by in some dictionaries. When we say "merchandiser" we mean get-up-and-get, initiative, spizz and the work habit. And these are what you must have if you would **GET ALL OF YOUR SHARE**.

YOU must be a merchandiser or be several laps behind the parade. There is no alternative.

There are merchandisers and trailers in this trade—lots of them. The merchandisers are getting a lot of business and velvety profits that might go to the TRAILERS if the TRAILERS would only wake up and be **MERCHANDISERS**.

And the man who just spins around like an over-excited hen and doesn't accomplish any more than if he spun less is **NOT** a merchandiser. He is a waster of time and energy.

The merchandiser is the man who goes at things in a common sense way. He learns what methods are the shortest cut to profitable business. He studies other businesses and he studies **THIS ISSUE OF MOTOR WORLD**. He takes every idea he can get and **MAKES IT WORK**. He is the man who **THINKS** and finds the best ways to sell goods and get business. He keeps his nose up out of the rut and becomes a **BUSINESS MAN** instead of an ex-mechanic.

Makes His Brains Work

He is the man who makes money with his brains instead of with his hands. The money that hands can make is limited. There is no limit to what brains can make.

Let us illustrate. Let us first take a garage:

The ex-mechanic-garageman's place is not scoured and clean. If he used his brains he would know that the first im-

pression of the customer is worth thousands of dollars to the garageman and the front would be as attractive as the front of the best store in town.

A motorist drives up for gasoline. He has to toot his horn several times before he gets waited on. The gasoline man, when he flips the filler pipe out, dribbles gas over the car. Some of it gets on the cushions and loosens a little dirt, and the dirt gets on the dress of the man's wife. She is disgusted. She classes the garageman as "a filthy, ignorant thing."

He Isn't Intelligent

She isn't entirely wrong. The garageman can hardly be classed as "clean" if he spills gasoline all over his customers' cars, and he isn't exactly "intelligent" if he doesn't know better than to make customers blow their horns until he gets ready to wait on them. And then probably the man who drew the gas was wearing clothes that made him look like what the woman said he was.

The motorist pays for his gas and goes on, classing all garagemen as low-grade men. This garageman has hurt the whole industry.

But here's how the merchandiser would do it:

His garage would be a model business place. He knows that his brains can earn more than his hands, so he is the boss of the business and hires hands to work for him. He watches the place and sees that it is kept clean. When the motorist spots this place he has a thrill

of joy. He says to his wife: "That looks like a real garage."

Before the car has stopped there is a neat and clean man at the pump. When he removes the filler hose he is careful.

Do It This Way

When he goes in to get change for the motorist's five-dollar bill he comes out with a combination spot-light-mirror-scope and deftly fits it to the windshield. This is done while the motorist is pocketing his change, and all the time the salesman—for he **IS** a salesman—is explaining the spot-light. The motorist buys the spot-light, and as he goes down the street he wiggles it in the joy of ownership.

He says to his wife: "That **IS** a regular garage." And several times that day he says: "I don't see how I ever got along without that spot-light mirror."

Go back and read our definition of "merchandiser." Don't you see now how the merchandiser-garageman made his head make money for him? How he took advantage of the opportunity to sell goods?

And don't you see how the ex-mechanic-garageman took only what his **HANDS** would earn for him? He didn't get **ALL** of **HIS** share. The merchandiser-garageman is getting most of it because he uses his head.

Another Illustration

And one more illustration:
The motorist drives in to leave his

chandiser

If You Would

YOUR SHARE

car for the night. Employees are yelling at one another. Finally one of them takes charge of the motorist's car.

The motorist, without a good-night being said or a question being asked, goes to the hotel.

The next morning the motorist calls for his car, pays his storage and drives away.

Ten blocks down the street he begins to worry about his gasoline and oil and buys some from the first garage he finds.

Out in the country he has a blow-out, and curses himself for having failed to bring a spare tire and tube. He takes the tire off and runs to the next town on the rim. At the first garage he approaches he buys a new tire and tube. And rather than wait for the blow-out to be repaired and rather than risk another he buys an extra tire and tube. That night he gets the blown shoe fixed.

Again, Do It This Way

Here is how the merchandiser would do it:

The motorist drives in the door and a courteous man at once greets him and, while not being as voluble as a barber, makes a remark or so about the weather. He knows all tourists are proud of their road work so he asks, "From where to where, how many miles to-day," etc.

The tourist feels in good humor right away.

While the tourist is getting his claim check, or perhaps telling the story of his trip, the salesman—for he IS a salesman—asks if there are some tires or tubes that should be fixed. He examines all the tires for cuts and danger spots. He notes that there is no spare shoe. He asks about gasoline and oil. Before he gets through he has an order for 10 gallons of gasoline, a pint of oil, a tube, a shoe, a shoe repair and a lunch kit.

He says: "If you wish, we shall send the lunch kit to the hotel chef and you can have him pack it for you in the morning. You order it packed and we'll have it in the car for you when you start. Then you can have a picnic party tomorrow."

The SALESMAN finds out when the

car is wanted and has it all ready AT THAT HOUR. There are no delays. The tires are pumped up, water is in the radiator, the car is clean, the lunch kit is aboard, there is plenty of gas and oil, the tire is in place and all the motorist has to do is pay his bill and throw in the gears. He doesn't even have to kick the starter, for that has been done for him.

Of course, the bill is much larger than it would have been in the ex-mechanic-garageman's place of business, but the motorist is SATISFIED. He has BEEN TAKEN CARE OF. He has been given WHAT HE WANTS WHEN HE WANTS IT AND HAS PAID A PRICE FOR IT, and that is service.

And don't you suppose the merchandiser-garageman is satisfied too? He has the profit that lies in a bill of about \$40. The ex-mechanic-garageman has only the 50 cents or so for storage, and with his poor accounting methods he doesn't know that there is no profit for him in 50-cent storage. Even if he made 10 cents profit, how does that compare with the other garage's \$10 profit?

Merchandising has paid an increase of 1000 per cent.

How to Sell a Car

Let us illustrate with a car dealer:

A prospect walks in the salesroom door. The dealer isn't feeling very spry to-day, so he sits in his office until he GETS READY TO COME OUT. Then he ambles out and waits for the prospect to tell what he wants.

The prospect asks if the dealer has a four-passenger touring car. The dealer says "No." A three-passenger roadster stands on the floor.

The prospect goes out.

The dealer goes back to his office.

Here's the other side of the story:

The dealer gets up like a LIVE MAN when the prospect opens the door, greets him half way across the floor and says "Good morning."

The Right Answer

The prospect asks for a four-passenger touring car. The dealer asks the prospect to look at the three-passenger roadster. The prospect shows some interest

but holds off. He says his wife must see it.

The dealer gets the prospect's name, puts it in the file and plans some immediate sales work on the prospect.

He sells the car. His profit, after taking out overhead and everything else, is \$100.

And one more illustration:

Spring is at hand.

The ex-mechanic-dealer has a file full of prospects. He has two salesmen also. They know warm weather will bring some business. The dealer runs an ad in the newspapers once in a while because the ad-man worries it out of him.

Then they wait for customers, and before the summer is ended they have sold a few cars. They have made a small profit, and the dealer damns the factory for wanting him to "take more cars" when the territory WON'T ABSORB THEM.

On the Other Hand

On the other hand:

The merchandiser dealer has a file full of prospects. He adds some more from many sources. He gets a lot of ideas out of Motor World and his own head.

He and his salesmen lay out a campaign of sales. They send letters and literature to the prospects. They advertise persistently. They make personal and telephone calls. They plug hard and use all the sales ideas they can get.

In addition to the business that summer brings them they get a lot of business and make a lot of money.

They have made a big profit and the dealer damns the factory because it won't give him more cars, because, he says, his territory is HOWLING FOR THEM.

These few illustrations may have been taken from your own business. Who knows? No one but yourself knows.

But this one big fact you MUST KNOW: If you're going to get ALL OF YOUR SHARE of this summer's business instead of letting it go to some one else or lie undiscovered

YOU MUST BE A MERCHANDISER.

136 IDEAS

For

Better Merchandising

IT has been impossible to hold the number of Better Merchandising Ideas down to the 100 for which Motor World originally asked. Many times 100 letters were received, and, naturally, there were some duplications. These ideas represent the best that were received.—Editor.

1—BE ORIGINAL

Use an original line of advertising in the daily newspapers. We use this under the caption "Cuppet Says" and follow it by crisp sentences—O. R. Cuppet, Cuppet Bros., Clarksburg, W. Va.

2—KEEP ATTRACTIVE

We attract transient trade by repainting the front and interior, keeping it clean and flooding it with light.—O. R. Cuppet, Cuppet Bros., Clarksburg, W. Va.

3—NO GLARE STUNT

Our town is a seashore resort and our garage is at a boardwalk approach, where hundreds of cars are parked in the evening. If the police find a car without the lights burning, they put a tag on the wheel notifying the owner to appear in court. These tags create considerable comment, so we had a tag made stating that the headlight law requires "no-glare" and that Perrin no-glare can be bought for \$1 at our store. We put these on the windshield of cars which were not equipped with dimming device and we brought a great many people to our garage. Some of them thought they had been served with notices by the motor vehicle inspectors.—Fogg Motor Co., 844 Asbury Ave., Ocean City, N. J.

4—ROADSIDE ADVERTISING

This spring we looked our road signs over and renewed them where necessary. We are located about halfway between Springfield and Mount Vernon, a distance of 40 miles. All tourists going and coming require a route to one or the other of these places and we have put up

road signs. We are also distributing literature in hotels in nearby towns showing a photograph of our garage and a map giving the different roads leading to our garage.—Republic Garage, Republic, Mo.

5—PERSONAL SOLICITATION

We get repair business by personal interviews with our regular customers and occasional patrons.—O. R. Cuppet, Cuppet Bros., Clarksburg, W. Va.

6—FREE PUBLICITY

I have a standing ad in the local paper which I change every 2 weeks. I have arrangements with the paper for free publicity stories which have the best effect here. These are articles on points on which the car owner wishes information and as he reads them it gives me his favorable attention. It advertises my ability and introduces me to people.—P. J. Thue, Cannon Falls, Minn.

7—CONTINUOUS PUBLICITY

I have the roads full of road signs and keep my garage before the public all the time.—P. J. Thue, Cannon Falls, Minn.

8—PERSONAL INTEREST

There is nothing quite so good in our estimation in getting new business and keeping it as showing a personal interest in our customers and making them feel that we want our goods to give them the best of satisfaction.—Charles L. Turner's Garage, Peoria, Ill.

9—SALES FOLLOW-UP

We advertise in the county papers, send out circulars and make personal

calls on prospects in our car sales work.—S. L. Bradley, Princeton, Ill.

10—TESTIMONIAL ADVERTISING

I got testimonial letters from the people to whom I have sold cars for the last three years and used one of them each day in the best paper in the city. It is absolutely the best ad I ever saw. It has sold 14 new cars for me to date.—W. C. Morehouse, Poughkeepsie, N. Y.

11—SPECIAL SALES SYSTEM

The best idea we ever had in the writer's opinion for selling cars is covered by a folder entitled "Knowledge Is the Key to Success." We sent the folder to all our owners a year ago. Then all our salesmen were schooled in a certain speech and were given certain instructions which they were to give to various owners and prospects who came into our salesrooms and there were a lot of them who came in. We kept this instructive work up for about 2 weeks and the results were gratifying indeed. It not only gave instructions to owners, but gave the prospect the idea that he could obtain service from us and that we were interested in our owners—a sort of indirect advertising which appeals to the majority. Another very good idea was a letter on service which we sent out.—J. G. Fenton, Northwest Buick Co., Seattle.

12—PROCURED LICENSES

To Maxwell and Chandler owners we sent a letter offering to secure their licenses for them and know that we derived business and publicity from it. We

Cuppet Says:

The man with the PUSH gets along fastest, but the car with the PULL appeals to the man with the PUSH. HAYNES cars have the PULL.

Cuppet Says:

West Virginia is loyal to the man who drives a HAYNES.

Thousands of people read what "Cuppet Says" in his daily ads. This idea is not patented. "Cuppet says" you can put it to work yourself

also ran the letter as a newspaper ad. We also send out circular letters from time to time.—H. P. Brant, Seattle Automobile Co., Seattle, Wash.

13—ALWAYS ON THE JOB

Everlastingly soliciting and being on the job all the time, holidays and Sundays, is what produced the result for us.—C. A. Quigley, Salt Lake City, Utah.

14—PROMPT SERVICE

Be quick to give the owner what he wants and be courteous. Do your work right and give fair treatment to all and charge what is right and your customers will come back.—J. P. Beck, Saginaw, Mich.

15—PLEASANT DEMONSTRATION

When the thermometer is sizzling around the hundred mark, a call on a prospect with an invitation to take an afternoon spin, either out in the country or to the seashore, if near by; this is always very acceptable to the family as a whole. On the first drive I think it best to avoid all conversation relative to the purchase of a machine unless the prospect brings the point up. The salesman should discuss points he finds are of interest to the prospect. When he leaves he should suggest a future ride and on this trip discuss the merits of the machine. By not trying to force the sale, the salesman gets into the good graces of the prospect as a friend and his chances are greatly increased.—W. F. Ferman, Tampa, Fla.

16—HANDLE ADVERTISED GOODS

Handle a selected and standardized line of accessories, and push the sale of these accessories. By handling the small nationally advertised line, the amount of money invested is small, the selling facilitated, and the goods stay sold. The profits come from quick turnover.—R. E. Beedee, Interstate Auto & Supply Co., Davenport.

17—STICK TO BUSINESS

Stay at your place of business and thereby create good will among your customers.—Drennen Motor Car Co., Birmingham, Ala.

18—KEEP CUSTOMERS SATISFIED

Never let a customer become dissatisfied.—Drennen Motor Car Co., Birmingham, Ala.

19—MOVIE FILMS

For selling the cars we have found it a good idea to run films in the best patronized movie houses in our neighborhood.—Wm. Bergstrom, 5850 S. Halstead St., Chicago.

20—MILE POSTS

My best idea is to place mile posts along roads that are largely traveled, reading such as "Five Miles to Florida Garage, Clearwater, Fla."—Elmer Becker, Florida Garage, Clearwater, Fla.

21—ELECTRIC SIGN

A large electric sign in front of the garage helps to bring business.—Elmer Becker, Florida Garage, Clearwater, Fla.

22—GIVE INFORMATION

Giving information to motorists is a good business getter.—Elmer Becker, Florida Garage, Clearwater, Fla.

23—FREE AIR

We have found free air a good means for bringing us transient business.—Elmer Becker, Florida Garage, Clearwater, Fla.

Read what they say about the
Maxwell Motor Car
SOLD BY
W. C. MOREHOUSE
Automobile & Supplies
438 MAIN STREET Poughkeepsie, N. Y.

Pawling, N. Y., Jan. 2, 1917

Mr. W. C. Morehouse,
Poughkeepsie, N. Y.
Dear Mr. Morehouse:
You did not say one word too much in praise of the 17 model Maxwell. In fact, it would be impossible for any kind of car to be more satisfactory.
We have driven it constantly since June, over the roughest and wildest kind of roads, through mud and snow, as well as in the most congested New York traffic, and never once has it failed us.
The bill for repairs to date amounts to just ninety cents.
Thanking you for the attentive and generous way that you have always treated me, I am,
Very truly yours,
WARNER WOODBERRY
1, 1917.

Morehouse gets testimonial letters from owners, has 'em printed like this—and the idea sold 14 cars for him

24—BE A GENTLEMAN

Being courteous to patrons we have found to be one of our best business foundations.—Elmer Becker, Florida Garage, Clearwater, Fla.

25—ADVERTISE

Advertising is an essential; we use newspapers, letters, circulars, movie film and billboards.—Elmer Becker, Florida Garage, Clearwater, Fla.

26—ROAD SIGNS

Road signs bring wonderful results.—Ferguson Auto Co., Coffeyville, Kan.

27—QUOTE PRICES

Newspaper advertisements are good, but we find that quoting prices increases their efficiency.—Ferguson Auto Co., Coffeyville, Kan.

28—ONE PRICE

One price to the tourist and the home town motorist is the best business principle.—Anderson Motor Co., York, Pa.

29—GET LIVE LIST

A live prospect list is necessary for any car dealer.—Anderson Motor Co., York, Pa.

30—HANDLE ACCESSORIES

Handling accessories brings a good profit.—York Garage & Supply Co., York, Pa.

31—ADVERTISE

Advertising in our windows and local newspapers has increased our business considerably.—York Garage & Supply Co., York, Pa.

32—LIVE MAILING LIST

Our two best sources of business are a live mailing list and persistent newspaper advertising.—C. E. Motter Automobile Co., York, Pa.

33—HANDLE GOOD ACCESSORIES

Handle an extensive line of well-known and the latest accessories.—J. W. Richley Automobile Co., York, Pa.

Read what they say about the
Mitchell Motor Car
SOLD BY
W. C. MOREHOUSE
Automobile & Supplies
438 MAIN STREET, Poughkeepsie, N. Y.

Tivoli, N. Y., Jan. 8, 1917.

W. C. Morehouse,
Dear Sir:
In reply to your letter of Dec. 27th, will say that I have driven a Mitchell Roadster over 6,000 miles and up to this time has given me no trouble. It is the most comfortable riding car on the market for under \$2,000. The drive has shown very little wear of power and speed—far more than the average owner cares to consider. This car has been driven hard and fast over all kinds and conditions of roads and will say that it has stood up far beyond my expectations. So far I am very well pleased with the car.
Yours truly,
EZRA COOKINGHAM

Thanks, Mr. Swaner—

Your minute service idea is great. A lot of others ought to copy it. (See No. 37.)

34—ACTIVE CAMPAIGN

Our prospect list is followed up by an active campaign of personal visits and newspaper advertising.—J. W. Richley Automobile Co., York, Pa.

35—USED CAR SALE

Clean out the used cars, and make way for the summer business. Do this by holding a 10-day used-car sale. Move the new cars from the salesroom, and have every member of the organization concentrate on the sale of the used cars—from the washer up.—F. H. Fenner, The Winton Co., Detroit.

36—USED-CAR SPECIALS

List all possible used-car prospects as to vocation, and send them circular letters and pamphlets containing a description of the used car best suited to their needs. This will move the used cars, and get many new car prospects.—Geo. F. Reim, Cadillac Co., Omaha, Neb.

37—MINUTE SERVICE

Give the owner minute service in the repairshop. Systematize the shop so that each job is done in a certain place, with tools that are designed for that work. Hold regular meetings of the workmen to discuss the best method of handling the work.—Swaner Motor Car Co., Fort Dodge, Iowa.

38—SUGGESTION BOX

Get each employee to thinking outside of his own particular work. Do this by installing a suggestion-box system, and then carefully considering every suggestion offered. This is a great step toward co-operation, produces invaluable suggestions, and boosts summer business.—O. R. MacDonald, Herring Motor Co., Des Moines, Iowa.

39—SELL ACCESSORIES WITH CAR

Push the sale of accessories at the time a car is sold. From \$50 to \$75 worth of accessories may readily be sold when the owner is in a buying mood. Get the salesmen to feel that they are selling something besides cars.—O. R. MacDonald, Herring Motor Co., Des Moines, Iowa.

40—OIL CONTRACTS

Close up season oil contracts with your patrons—or with somebody else's. This will enable you to buy oil in carload lots, and sell it at a profit.—O. R. MacDonald, Herring Motor Co., Des Moines, Iowa.

41—KEEP THE CUSTOMER SOLD

Keep the customer sold. Eighty per cent of our customers are sent to us by other satisfied customers. We keep our customers satisfied by having one man

that does nothing but give service on our products. A satisfied customer is the best salesman.—F. A. Smith, Wayne Oil Tank & Pump Co., Detroit.

42—SUDDEN SERVICE

Boost tire sales by giving "Sudden Service" to all customers on the road. The earnings of the repair department from work so obtained will pay a large share of the overhead of the business. The satisfied customers bring more customers.—E. E. Davis, Detroit Tire Co., Detroit, Mich.

43—24-HOUR SERVICE

Keep your tire department open every day in the year, and open until 10 each night. Tire customers want service when they need it.—E. E. Davis, Detroit Tire Co., Detroit, Mich.

44—A WINDOW A DAY

Change one of the display windows each night. In addition to giving each accessory a fair show, there is no opportunity for the displays to get dusty. This is a common fault of accessory displays, as they are difficult to keep clean.—E. E. Davis, Detroit Tire Co., Detroit, Mich.

45—HANDLE SECONDS

Handle all kinds of factory seconds in the tire line. A large class of people want this kind of a tire, and can pick the brand they want from the line. It is, of course, necessary to have first class tires in stock, but with a supply of seconds, nearly every prospect can be sold.—G. J. Moebs, The Loveland Co., Tire Dept., Detroit, Mich.

46—MONTHLY SALES CONTEST

Hold a salesman's contest for one month, at the opening of the selling season. In addition to the increased number of sales this will produce, a prospect list will be obtained for future follow up.—G. E. Bleil, Grasser Motor Car Co., Hupmobile, Detroit.

47—USED CAR SPECIALS

Dispose of the used cars. Do this by having one man specialize on used car purchases and sales. Use the newspapers for advertising, but advertise only one or two of the used cars at a time. Tell exactly what that car is, and what it costs. Use a lot of white space in the advertisements. These methods have sold 60 used cars since November.—F. H. Grossbeck, King Auto Sales Co., Detroit.

48—CHANGE DISPLAY OFTEN

Change the arrangement of the cars often, and change the decorations of the salesroom at least monthly. Have every person entering the salesroom met by a salesman. The former will keep the display distinctive, and avoid ruts. The latter will assure no prospect being slighted.—J. Judd, Strassburg-Miller Co., Liberty, Detroit, Mich.

49—CREATE ENTHUSIASM

Create a spirit of enthusiasm and work among your salesmen. The rest will take care of itself. Do this by holding regular sales meetings, weeding out the inefficient salesmen, and rewarding the men that bring results.—E. E. Turner, Gordon Auto Sales Co., Chandler, Detroit, Mich.

50—SPECIAL PROSPECT LIST

Obtain a list of all the car owners of cars in your class. Send them circular letters, and follow up all the live prospects so obtained.—C. E. Dawson, Chevrolet Motor Car Co., Detroit Branch.

51—STUDY THE 5 AND 10 CENT STORE

Study the Woolworth method of arranging small items, and follow that arrangement in placing the accessories. That is, get every item where the customer can see it, see the price, and where the salesman can get it with no lost time. Use the dealers' helps supplied by the accessory manufacturers.—J. T. Bel-

This is one of the best aids to sales the Northwest Buick Company has ever seen. Yet, see how simple it is!

Knowledge
Is the Key to
Success



Beginning November 15th we will have on display in our show room the chassis of all of our 1916 models. We invite you to call after noon or evening at which time we will explain the cars a Buick should receive to give the owner the greatest service at the least expense.

Northwest
Buick Company
desires the same
results

anger, Woodward Tire and Repair Co., Detroit.

52—FORGET YOUR COMPETITOR

Concentrate your efforts on sales and service and forget your competitor and the bad features of the car he sells.—P. Y. Gillson, Reno, Nevada.

53—WORK

My three best ideas for getting summer business are: Work! Work! WORK! —Jud S. Joslyn, Rockford, Ill.

54—SELL ACCESSORIES

We are going into the sale of accessories on a more extended scale. We have a small showcase in our salesroom which has earned us a lot of money and because it has done so well we are going to expand the business. We believe our many satisfied car owners are an excellent field for the sale of thousands of dollars worth of accessories. We are going to feature a standard make of tire and push it hard.—William H. Vinal, Sales Manager, Russell P. Taber, Hartford, Conn. (Reo).

55—SKILLED LABOR

We believe skilled labor is one of the best getters of business we have.—E. W. Minske, Minneapolis.

56—FILLING STATION

A filling station with a good electric sign we have found brings us a great many customers.—E. W. Minske, Minneapolis.

57—GUARANTEED WORK

We believe in "live and let live" and good work, and if a customer is not satisfied with anything we want him to return it at our expense.—E. W. Minske, Minneapolis.

58—READ MOTOR WORLD

There is no question about business. We have had good business ever since we started. We have now been in business for 2 years and I know we have secured our share. We have found a good share of our ideas in MOTOR WORLD. Good service and fair charges are essential.—A. W. Lerwick, 114 Wilson St., E., Madison, Wis.

59—SELL TRAILERS

Get the agency for a trailer that is usable in your section and sell some of these little vehicles to the grocers, contractors, florists, butchers, newspapers and every other businessman who has to cart anything and doesn't need a delivery wagon all day long. With a trailer he can make his car a truck in a few minutes and unmake it just as quickly.

60—CIRCULAR LETTERS

I used circular letters and followed them up with personal solicitation.—E. R. Curtice, Meridian, Miss.

61—FREQUENT WINDOW CHANGE

We keep our window displays bright and change them frequently.—E. R. Curtice, Meridian, Miss.

Let's *all* Thank
Ralph H. Ratliff
For Idea No. 74.
It's a peach

62—BILLBOARDS

This spring we are putting up billboards advertising our business and believe we shall get good results from them.—E. R. Curtice, Meridian, Miss.

63—MOVIES

We are running picture slides this spring in a moving picture house which draws an audience of fairly good quality.—E. R. Curtice, Meridian, Miss.

64—THE GOLDEN RULE

We find that the application of the Golden Rule is about one of the best business principles there are.—Eugene Schuler, 1065 S. Figueroa St., Los Angeles, Cal.

65—ATTRACTIVE SALESROOM

We have an attractive salesroom with bright decorations and find that this does much to win attention and furnish leads for business.—Eugene Schuler, 1065 S. Figueroa St., Los Angeles, Cal.

66—PROGRAM ADVERTISING

We advertise in the Orpheum programs and race progress and also use the newspapers.—Eugene Schuler, 1065 S. Figueroa St., Los Angeles, Cal.

67—SPECIAL DEMONSTRATORS

We have used demonstrating cars painted in special colors which attract the attention of motorists.—Eugene Schuler, 1065 S. Figueroa St., Los Angeles.

68—SPECIAL WINDOW SIGNS

We have signs painted describing some especially noteworthy feat accomplished by the cars we handle and display these signs conspicuously in our windows. We also show photographs and newspaper clippings.—Eugene Schuler, 1065 S. Figueroa St., Los Angeles.

69—LETTER SERIES

We have a series of twelve letters which we use on all car owners and other prospects.—Southern Oregon Auto Co., Klamath Falls, Ore.

70—ROAD SIGNS

We have road signs placed at all intersections, giving distances and other information.—Southern Oregon Auto Co., Klamath Falls, Ore.

71—ELECTRIC SIGN

We have a large electric sign on the garage which we find to be an excellent advertisement.—Southern Oregon Auto Co., Klamath Falls, Ore.

72—NEWSPAPER ADVERTISING

Newspaper advertising brings us in considerable business at all times of the year.—Southern Oregon Auto Co., Klamath Falls, Ore.

73—CANVAS SIGNS

We have large canvas signs stretched over stiff frames, 4 x 8, on which we put condensed phrases from time to time about the different cars. We find it quite profitable to use these in our display-window.—H. Olewine, Olewine's Garage, Hazleton, Pa.

74—CLEAN, POWERFUL TROUBLE CAR

If I were a repairman and wanted more business I would clean and paint my trouble car, rebuild the motor and put everything in good condition. Everyone is judged by the company he keeps. From observation, the majority of trouble cars look pretty tough. Who knows from observation but what the repairshop leaves the car it works on in similar condition? A powerful and quiet engine in the trouble car is a mighty good advertisement. Neat and clean garages are essential and so is the appearance of the cars which bring in work. Take a look at some of the old boats which do the pulling in.—Ralph H. Ratliff, Butler Mfg. Co., Indianapolis, Ind.

75—LIKE LUTE MORSE

I work mostly on car sales and operate very much like Lute Morse, whose story appeared in Motor World recently. I study, think, work and advertise, using local papers, form letters and reliable testimonials.—O. W. Younggren, Hallock Auto Co., Hallock, Minn.

76—ADVERTISE IN NEWSPAPERS

We use newspapers regularly 12 months in the year and endeavor to run large, special ads in the Saturday editions so they will be looked over when the folks are at leisure Sunday.—H. Olewine, Olewine's Garage, Hazleton, Pa.

77—PERSISTENT FOLLOW-UP

We have a car prospect mailing list to which we send special advertising folders and printed matter every 2 or 3 months.—H. Olewine, Olewine's Garage, Hazleton, Pa.

78—DEMONSTRATE TO FAMILIES

Our most satisfactory demonstrations have been to families. We go to the home, take the members of the family out as they would go if they owned the car. This forces on them a sense of appreciation which they cannot shake off. If they wanted to go for half a day, we would oblige them.—Edward H. Richardson, Thrall Colton Motor Car Co., Hartford, Conn. (Kissel).

79—LONGER DEMONSTRATION

We found that we were doing more or less running around and not affecting the sale of cars, whereupon we began a more intensive system of demonstrating, the feature of which is our demonstrating to entire families, making tours of considerable length.—Edward H. Richardson,

Thrall Colton Motor Car Co., Hartford, Conn. (Kissel)

80—INSTRUCT OWNERS

In order to keep sales up we render efficient service after the cars are sold. We also write to our owners giving them helpful information as to the care of their batteries, oiling system and so forth. This keeps them satisfied and they tell their neighbors.—O. W. Younggren, Hallock Auto Co., Hallock, Minn.

81—FOLLOW-UP CAMPAIGN

We used a mailing campaign on our used car prospect and follow it up closely with very good results.—George W. Tremain, Tremain & Rankin, Ft. Dodge, Iowa.

82—BILLBOARDS

We are using large 20 x 30 ft. bulletin board signs on the principal roads through this section.—George W. Tremain, Tremain & Rankin, Ft. Dodge, Iowa.

83—EVENING CALLS

I have had the best results, after finding my prospects, to go into their homes in the evening, after the man and wife are both tired from their day's work. I get the whole family in the car, as any car rides better when loaded. I take them for a ride of perhaps 20 miles and before the return home I point out how well the car lights the way and in this way I have closed more sales than any other.—Charles P. Fribley, Goshen, Ind.

84—CLEAN UP

We clean up and put on more help and give the customer good service.—Dunbar Ave. Garage Co., Dorchester Center, Mass.

85—LEAVE THE DOORS OPEN

We do no advertising at all, use no schemes to attract attention, just leave the doors open. There are 10 or 12 garages in this city, we are 12 miles from the heart of Chicago, still we have all we can possibly do the year round. We are not car dealers. We rely solely on the satisfied customers to boost our business and they are made so by giving them full value for their money.—Evanston Auto Co., Evanston, Ill.

86—MOVING PICTURES

We used the Death Valley Dodge moving pictures and sent out tickets freely and got the names as the tickets were exchanged at the theater.—George W. Tremain, Tremain & Rankin, Ft. Dodge, Iowa.

87—SPRING OPENINGS

Handling, as we do, three lines, Pierce-Arrow, Hudson and Dodge, we stimulate summer business by spring openings. We have already shown

two Pierces with special salesroom decoration and special advertising campaign. Our Hudson opening will show cabriolet, sedans, town car and landaulet and a wire wheel standard touring car. At the Dodge opening we shall show a sedan and convertible coupe. Each show lasts about four days, running over a Sunday.—Tom Botterill, Denver.

88—PRIZES TO OWNERS

To increase our car business we write to every car owner to whom we have sold a car and whom we have satisfied because of proper treatment and offer to this owner some prize, such as a tube, for the sale of a car to any prospect with whom the owner will put us in touch. Of course, we enclose a self-addressed, stamped envelope and ask the owner to furnish us with a list of prospects. The prospects furnished are followed up by letter and personal calls until we sell them or someone else does.—Charles J. Belsky, Belsky-Cook Motor Co., Dubuque, Ia.

89—DIRECT MAIL ADVERTISING

Our tire repair accessory business is being increased by direct mail advertising and by use of the policy, "The customer is always right."—Charles J. Belsky, Belsky-Cook Motor Co., Dubuque, Ia.

90—BRINGS WORK IN

I make personal calls and solicit small jobs such as welding and tire repairing and bring the jobs home with me and fix them. This brings customers I would not get otherwise.—P. J. Thue, Cannon Falls, Minn.

91—DEMONSTRATE ACCESSORIES

I take some of the new accessories out with me and put them on cars; if the

owner likes it, he pays for it, and if not, I bring it back.—P. J. Thue, Cannon Falls, Minn.

92—DO IT NOW

Hang a sign over the desk, "Do It Now," and then do as the sign says.—N. W. Collamore, 53 Henry St., Cambridge, Mass.

93—CIVIC INTEREST

I take an active interest in public affairs, particularly in good roads, and advertise extensively through circular letters.—P. Y. Gillson, Reno, Nev.

94—BEFRIEND ALL MOTORISTS

I extend courtesies to all motor enthusiasts, regardless of their financial standing, and have built up a long list of boosters, who perhaps never will be in a position to buy a Cadillac, but we are sure this will bring business.—P. Y. Gillson, Reno, Nev.

95—TELEPHONE CANVASS

A telephone canvass has been productive of some good, live prospects. In this canvass some competent person calls up each telephone subscriber.—J. W. Martin, F. E. Murphy Auto Co., Minneapolis.

96—READS TRADE PAPERS

I read eight automobile trade papers and find a great many ideas valuable to my business.—Isham J. Dorsey, Opelika, Ala.

97—GET CASH

I sell for cash and every car owner remains my friend. Those who owe you bills generally avoid you when their accounts are overdue.—Isham J. Dorsey, Opelika, Ala.

98—PERSONAL LETTERS

I write personal letters to all car owners explaining my methods and use similar copy in the newspapers.—Isham J. Dorsey, Opelika, Ala.

99—CASH BUSINESS

Endeavoring to get cash for all business may mean a loss of a few customers, but not many, and it certainly means more profits in the long run.—A. W. Lerowik, 114 E. Wilson St., Madison, Wis.

100—KEEP CUSTOMERS

When I once get a customer I mean to keep him if there is any possible chance. I lay the success of my automobile selling to my satisfied customers.—George H. Birdsey, Middletown, Conn.

101—GET THE PRICE

I will not cut prices. I get my price or do not sell. If I give anything it will be service or something of my own free will after the sale has been made. I think price-cutting is one of the worst things any

(Continued on page 48)

ATTENTION!

Maxwell and Chandler Owners AUTOMOBILE LICENSES

The automobile licenses for 1917-18 can be obtained now. The new law, which is being passed by the legislature now, will not go into effect until about June 8th.

Licenses procured before then can be had at the present rate and will be good for the ensuing year. We will gladly make out your application for you, if you so desire.

LICENSE FEE

Maxwell "25," "The Car Complete"	\$3.00
Chandler Light-Six, "The Car With the Marvelous Motor"	5.00

Seattle Automobile Co., Inc.

H. P. GRANT, Manager.
1101 East Pike Street.
Phone East 462.

The Seattle Automobile Co. offered to get licenses for new owners and in doing so piled up a whole lot of good will

The First Thing to Do Get Your Place in Shape

If You Would Get All of Your Share of Summer Business

There Are Several Points That Apply to All Phases of Your Business and Which You Should Give Your Attention at Once

THE first essential for summer business is that you get your place in shape. Your establishment is an important part of the machinery with which you are to earn your summer profits, and if the machinery is not in good shape it will not operate efficiently.

Your office, salesroom, garage, shop, accessory store, and other departments, must all be in tip-top physical condition, and yourself and your organization must be schooled and prepared for the summer work.

When the rush begins you will have no time for these things.

Be an Executive

PLAN your time so that you yourself will have time to plan. It is foolish for you to fritter your time away this summer with a lot of details that are within the capacity of a \$6-a-week office boy. You should be the directing head of the business, working out ideas for making more money, and unless you so arrange your organization that the burden of detail is taken off your back you will be like a bank president who spends his time counting pennies.

You should have capable assistants if your organization is of more than one-man size, and these assistants should be schooled as to their part of the work. If you are the only person connected with the business you should set aside a certain part of the day for working out development plans, even if you have to do this before you go to bed at night.

School Your Organization

EACH member of your organization should understand that he or she is a contact point between the business and the public. What the public thinks of your business is what it thinks of your employees and yourself. If an employee is discourteous to a customer, that customer has an unfavorable opinion of your whole organization, and this affects your business.

General Appearances

THE appearance of your building has a lot to do with your business. This is an established fact no matter what your opinion may be on the subject, and you should see that the front of your building is in excellent condi-

tion and does not look like a blacksmith shop. Your windows should afford a good display and be attractive. If there is unused ground in front of your building, sow it to grass seed and make it attractive. You may have room for vines and flower boxes and all kinds of

You should have meetings of your employees with frequency early in the season, and should keep the practice up all summer. This should include not only your salesmen and your office force, but service employees, your floor men, your porters, office boys, and every member of the organization. Every time you implant in any of them the idea that they are contact points, and that their conduct toward prospective purchasers means gain or loss for the business, you have immeasurably increased your possibilities for success.

The members of the organization should also be schooled in the matter of waste and leaks. A light needlessly left burning costs money, and there are thousands of employees who would turn them off if the matter were brought to their attention. Leaking water faucets are a loss, and should be brought to the attention of the proper person. Extending this idea throughout your organization may mean a great deal to you.

Fair Dealing

INSTRUCT every man that one of your business principles is a square deal for the customer, and that the customer must be kept satisfied if his trade is to be continued. A customer who buys once and never comes again can hardly be reckoned as a source of profit, especially if he fails to come because of dissatisfaction.

Stay on the job.

Yourself or a competent manager should always be on the job. It should not be necessary for a customer to be disappointed because the boss is out.

Get the price.

Impress upon yourself and every other member of your organization that it is the policy of the house to get the list price for everything. With a large number of customers that will come this summer it is possible for you to throw away hundreds of dollars unless you establish a rigid get-the-price rule.

extra touches of that kind that set a garage or dealer's building out above all the others for miles around.

Ventilation

Fresh air is absolutely necessary. The other day a Motor World man went into a salesroom in a large city. There was

no ventilation, the salesmen had been smoking and the place smelled like a poker room the morning after.

Cleanliness

The premises should be clean throughout and there should be a daily inspection by some competent person to see that things are kept up to snuff. If you let things slide to-day, it is easy to let them go to-morrow, and before you know it you have a pretty dirty looking place, all of which hurts business.

Insurance

Your building should be covered by insurance, and if you have any occasion to worry about liability or property damage, you should be covered on these points. Insurance premiums are pretty good investments. Also consult an insurance expert and see if a few simple alterations in your building will not greatly reduce your premiums.

Rest Rooms

No matter whether you sell cars or operate a garage, you should provide rest rooms for women and also a room where men may clean up. Toilet facilities in hundreds of garages—when there are any at all—are positively disgraceful and certainly cannot do much to help the business. The more modern garagemen are building rest rooms for women in which there are chairs, a telephone, mirrors and all the other things that are necessary in a room of this kind. You should not neglect the men. When a touring party comes in covered with dust



Have plenty of fresh air. You can work better, your employees can work better and your customers can buy better. Fresh air costs nothing and is a big help to efficiency

and dirt, it is very pleasing to discover that there are ample facilities for getting thoroughly cleaned up before leaving the garage. Try it yourself some time and see if this isn't so.

Getting the Office in Shape

Overhauling the premises and getting everything ready, the work should be taken up in units, and a good place to start is the office. If you have no office, this is a fine time to make one.

Well Arranged

A proper arrangement of the furniture in your office may save you thousands of footsteps and lost motion this summer. The things you use most should be conveniently located so that you will not have to run to one end of the office to answer the telephone and then to the other end to press a call button and then to another place to push the cash register.

Cleanliness

The office should be orderly and clean. You should have files for letters and



Rest rooms for the women are worth many times what they cost

papers, and should keep your desk free from accumulations. It is impossible to do your best work if your desk is littered with a mess.

Have an Office Girl

There are thousands of small dealers and garagemen who would find an office girl an extremely profitable investment. She can add an atmosphere of business that is not obtainable in any other way, and she can take care of the details of business in a way beyond the capabilities of the dealer or garageman himself. Elsewhere in this issue is a story of what an office girl has done for a Western garageman, and every garageman and dealer should read it.

Have a Typewriter

Typewriters are not as expensive as they may seem. While most new ones cost \$100, there is one make which has been reduced to \$50, and there are in hundreds of cities stores where used typewriters can be obtained at from \$10 and \$15 up. A letter written in long-hand does not indicate a good business standing. No matter how well a letterhead looks, the appearance of a letter is spoiled if it is not neatly written. A typewriter is the only method that should be employed, and it is one of the first pieces of office equipment that should be purchased.

Letterheads

An attractive letterhead is important to a business. Many of the letterheads used by dealers look like billboards. Some of these heads are supplied by factories and consist of a highly colored rural scene with automobiles running around in the foreground. These are not good letterheads and the dealer should design his own. Motor World is glad to help design letterheads, and has laid out a great many for its readers.

Business Cards

The same thing applies to business cards. The dealer or garageman who has had little experience in type often

accepts from a printer a very poor business card. Your card is your introduction to the public and should be a good looking contact point.

Good Letters

See to it that your letters are good in appearance. If you happen to have a new office girl who is not a neat letter writer, bring this to her attention. It is a defect that is easily remedied.

Filing Systems

You can't maintain correspondence in any volume and not have a filing system for your letters. Even if you are a big dealer, it is quite likely you have not the best system. It is a matter worth investigating. In case you have no filing system at all, Motor World will be pleased to advise you on this point.

Accounting System

If you are not going to operate a good accounting system in your business, you are passing up one of your big opportunities for making profit. Unless you have some means of keeping track of the money that comes in and goes out, you are absolutely ignorant as to how much business you are doing and whether you are making money.

If you have no system at all, you are invited to ask Motor World's system editor about the Motor World Simplified System of Accounting. It is being used by more than 2000 dealers and garagemen, who are enthusiastic over it since

An office girl can earn money for you. The place that can't afford an office girl is small indeed. During the summer every garage and salesroom should have a girl and typewriter



they have learned how it helps them on the way to business success.

Cost Analysis

In connection with your accounting, you should analyze your costs. You should study them and learn what parts of your business are expensive and what parts are highly profitable. You also should know such things as what it costs you to do an hour's labor in your shop. Most repairshop operators do not really know the cost of an hour's labor, although thousands of them think they know.

Leaks

The operation of a good system will disclose leaks. One dealer found he was selling less oil than he bought, and an investigation disclosed that the dripping from the tanks was mixed together in one pail and thrown away. Separate pails under the different faucets checked this leak. This is but a single example.

Reports

From all parts of your business reports should come to yourself or some

central headquarters, and a complete report should be made up on the business as a whole. Your salesmen should turn in reports every day on what they have done; you should get a report from your shop, your accessory store and all other departments.

Mailing Inserts

All members of your organization who write letters should be instructed in the value of mailing inserts, that is, slipping

Ask every transient to put his name in your garage register with his car number and address. Later you can send advertising literature to him



into letters small pieces of advertising literature. The cashier should always do this with monthly statements.

Installment Sales

In case you have not an installment plan in operating your business, you should investigate the question because you may find it desirable during the summer to sell some cars at least on time payments. It is being done quite generally and competition may demand it.

A Pretty Salesroom Makes a Car Easier to Sell

The salesroom in which you sell your cars is as important almost as the car itself. You can put a not very good looking car in a good setting and add considerably to its value

THE salesroom should be clean, that goes without saying. You should get the floor in good condition and, if necessary, lay a new floor, and should make provision for having it cleaned every day or several times a day if necessary. Inspect the walls and, if necessary, refinish them. Also the ceilings. Look over your front windows and see if they cannot be improved. If you have no good display windows, build some. Motor World's Building Construction Department will be glad to advise you on this point.

Closing-Room

If you have a small private office that can be used for this purpose, fit it up as sale-closing room. Have comfortable chairs, a desk, a telephone, catalogs, photographs, contracts, blank checks, pen and ink and everything necessary for discussing the final details of a sale and signing the contract. Omit nothing because if you should have to leave the room for something that had been omitted, it might upset the entire sale. If you have not a small office that can be used for this purpose, get some palms or ferns with rugs and wicker furniture and fix up a corner of the salesroom. This will answer the purpose nearly as well, although it will not be quite so private.

Salesroom Furnishings

Furnishing a salesroom entails some expense, but it is a good investment. It adds atmosphere of a class and can do a great deal to popularize in the mind of a visitor a very ordinary car. Rugs should be used where necessary; there should be chairs, with here and there a table, palms, ferns, decorations, according to the size of the room. Do not overdo the job.

Oil the Doors

See that all doors swing easily, especially the door which admits the prospect to the salesroom. It is well to have someone to open this door for him, but if he has to do it himself, see that it swings easily. Do not make it hard for him to get in.

Lighting

In your salesroom, accessory store and at all points at the front of the building have good lighting fixtures and strong light, especially in the windows. The lights in the windows should be concealed so they will not blind one who looks at the window. If you are

in doubt as to how to go about this and will send a rough plan or sketch of the front of the building, Motor World's Building Construction Department will be pleased to advise you.

Accessory Showcase

You will find it profitable to have an accessory showcase located somewhere in the salesroom in case you have not a regular accessory department. Have this showcase at a point where it will not attract the attention of a man who is looking at a car, but where he is likely to see it before he gets out. A very small stock is all that is needed for such a case and the investment will earn a handsome profit.

The Stockroom

YOUR stockroom should be equipped with shelves and bins, each of which should be properly labeled.

Inventory

A card file of your inventory should be operated, and in case you have no better, Motor World can supply you with perpetual inventory cards. These tell you right up to the minute what you have in stock and enable you to buy more goods when you reach a certain minimum.

Stock Man

The man in charge of stock should be trained beforehand in his duties. He should be held accountable for everything that goes in or out of the stockroom. If the business is large you can have a man who does nothing but handle stock, and if it is small, it can be handled by the office girl or the shop foreman or some other person.

Salesroom Porter

During the busy season the salesroom should be kept scrupulously clean. The floor should be mopped or dusted every half hour if necessary, even if it takes the whole time of one man. There is nothing so repelling to a prospective buyer as a dirty salesroom.

Accessory Store

The accessory store, it goes without saying, should include showcases, shelves, wall cabinets and plenty of display fixtures, and provision should be made for keeping the displays in order and the stock and fixtures clean.

A cash carrier may be of good service if your organization and store are large enough to permit its use. With a cash carrier the customer has to wait for change, and while he is waiting, goods can be shown to him and many sales made. This simple plan will yield hundreds of dollars profit during the season.

How To Get All Your Share of Car Sales

YOU can work your head off to sell cars and not get satisfying results, or you can expend less energy and get excellent results. It all depends on the way you go at it.

There's a hard way and a less hard way, a wrong way and a right way.

Applying merchandising principles is the right way, the easier way. If you use the ideas in this story on Car Sales your work will not be like butting your head against a wall with no results, but will be a busy, satisfying work from which come profits.

IN getting all your share of car sales, there are certain things that are absolutely necessary. In securing prospects and transforming them into car owners, there are many different methods of advertising and selling that will get business for you, but aside from all these there are certain rules you must observe if you are to be an A1 dealer.

Absolute Necessities

A—Courtesy. When the prospect enters your salesroom he should be promptly and courteously greeted by some member of your organization. He should not have to stand around and wait. If your organization is of any size at all, it is well to hire a young man for \$12 or \$15 a week, drill him in meeting people at the door, ascertaining their wants, and getting them in touch with the proper person, and make this his whole job. A young man from high school would find this work a valuable education and it would make a good summer job for him, but unless he is going to stay on the job and meet people at the door instead of halfway across the salesroom, he will be absolutely useless. He should be a hundred per cent prompt and accurate. He should be impressed with the idea that sitting down and making his work

easy is not what he is paid for. You should pick an active young man in the first place.

B—Smoking. Smoking should not be permitted in the salesroom by your employees. This may, to you, appear to be a small matter, but it is highly offensive to many prospects, and may hurt business.

C—Clean demonstrator. When you take a prospect out in your demonstrating car you are endeavoring to impress him with the desirability of the car you want him to buy. The demonstrator, therefore, should be kept in the best of condition. These cars generally are in good mechanical order, but they are not always kept washed and polished. There should not be a speck of dust or dirt on this car, anywhere. If necessary, clean it off every time it comes in.

D—Clean cars. Cars in the salesroom should be always dusted and clean. The seats should be free from dust so that a prospect may not dirty his or her clothes when trying the seats or brushing against a car. The roofs of inclosed cars and the raised tops of touring cars should be carefully watched for dust. The other day a MOTOR WORLD man from the mezzanine offices of a dealer looked down upon the cars in the salesroom and the roofs of the cars were gray with dust.

SALESMANSHIP, while it is often regarded as psychology and a mysterious science, is for practical purposes largely common sense and hard work. One reason so many salesmen remain average is that they do not exercise their common sense and initiative and take advantage of the opportunities for betterment that are continually floating around under their noses.

Good English.—As an example of what was said in the preceding paragraph, every salesman knows he should use good English if he is to be the best type of salesman. Yet thousands of salesmen drift along from day to day without

making any attempt to improve their English. There is not room in this issue to go into a lengthy discussion of what is right and what is wrong, and in fact, it is hardly necessary, because every salesman remembers from his school days that he should not use such words as "ain't," yet thousands of them do it.

Good appearance.—As another example of what was said in the first paragraph, every salesman knows he should keep himself up in personal appearance, yet thousands of them find it a very easy matter to let their clothes become unpressed and their shoes unshined and some seem to have ceased to put im-

portance on the use of a razor. This is a subject that every salesman can take up and settle for himself and if he has not sufficient initiative to do it without being whipped into it, he is not much of a salesman.

The prospect file.—Prospects are the raw material from which the dealer creates business. There should be a file that should be kept up-to-date, all calls and work done should be entered on the proper cards and every name should be systematically followed up. If the file is not to be used, it is useless and if the dealer is to get all of his share of car sales, he must use his prospect list.

Getting prospects.—Since the prospect file is the foundation of the business, one of the most important jobs is getting names to fill the file. There are various ways and every now and then an original dealer digs up a way no one had ever heard of before.

- a—Satisfied owners are a good source of prospects. Many of them volunteer names of friends who are thinking of buying. It is also a good plan to have these owners visited from time to time by a high grade service man who asks if the car is running well. Incidentally, he asks for the names of prospects.
- b—One dealer offered a prize of a tube to his owners for every sale he makes to a man whose name has been furnished by an owner.
- c—Advertising will bring in a certain number of prospects.
- d—A study of the business directory or telephone directory will often reveal men who are excellent prospects.
- e—Sit down once in a while and think over all the people you know and see if there are some of them who look like good prospects. Have a meeting of all the people in your organization and ask them to think of prospects and report any names they are able to run across.



Telephone calls save the salesman's time and almost always get an immediate introduction to the prospect

- f—If you're selling a car at \$1,300, list all the owners of cars selling between \$500 and \$1,000 and endeavor to pull them up to your price level.
- g—Circularize your old dead prospect files and see if some of them cannot be brought back to life.

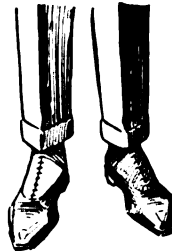
Sales follow-up.—Having secured the prospect, the next job is following him up and selling the car. Personal work is always the important factor, but there are many supplementary activities that will help. If you had a sales force large enough to keep after the whole list, all the time, you would need to do nothing else, but since you have too many prospects and too few salesmen, you must do some of your selling by mail.

A—Form letters, if used right, can do good work for you. You should use judgment, however. One of the best plans is to have a series of letters on different sales points such as comfort, service and price. When you believe a prospect is interested in some one of these points, you can fill in this particular letter and shoot it at him. Another way of handling form letters is to get up

a series and send it to your entire list or a selected list. This series should cover the principal points in your sales story.

B—Circulars and folders.—A good circular or folder is better than a poor form letter. A form letter should not be

Personal appearance counts. Unpressed trousers betoken carelessness. Every salesman should continuously keep his eye on himself



recognizable as such by the prospect, and if the filling in of the name is not going to match the type in the body of the letter, it is a poor job.

C—Telephone calls.—Telephone calls are desirable because they save the salesman's time and generally let him get directly to the man with whom he wants to talk. The salesman who will check up his time for a day will find that a big percentage of it is spent in running around and that comparatively little of it is spent in talking to prospects, whereas the only time that really counts is that spent in talking to the prospective buyer. The entire sales work, however, cannot be done by telephone. The telephone call, however, serves as a link in the follow-up and keeps the salesman in touch with the prospect.

D—Personal calls.—Before beginning any sales work, the salesman should

Garage and Shop

THE garage and shop should be in good quarters. There should be good light, good ventilation, good equipment and good men. Poor equipment and poor workmanship can hurt a business as can the lack of good equipment and a poor building.

System

Throughout the garage and shop you should have a good system. Each man should operate on a time card, each repair job should be handled on a repair order card, each sale of accessories or gasoline should be made on a sales slip, all material taken from the stockroom should be accompanied by a requisition form and each car that comes in for transient storage should have attached to it a storage tag.

Gasoline and oil should be handled on a system which enables you to keep track of every gallon that comes in and goes out with all short and over measures.

Line up your elevator service before your rush begins. Make sure garage customers do not have to wait and be annoyed at delays in your elevator service.

fortify himself with all the information he possibly can get about the prospect and his family. This preparatory work will make the sales work much easier. The salesman should then be sufficiently informed on the character of the prospect to know when to call, how often to call, and how to conduct his personal follow-up.

One thing to be borne in mind is that it is easy to take no for an answer. If the salesman were to quit every time he was given no and take an order only when the man said yes, there would be little use for the salesman. The salesman's work is overcoming the "no" of the prospect.

The salesman should be persistent and not imagine he is making a hit with the buyer by failing to follow him up. Failure to follow up is an excellent way of losing out.

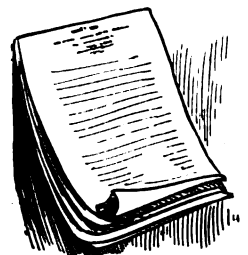
The personal work on the prospect supplemented by mail and telephone follow-up is just a question of keeping after the buyer and impressing more strongly with your story each time you see him.

A call in which progress is not made, is a backward step.

However, at this time of the year, when there are many prospects, the salesman may legitimately cease working on a prospect if he is honestly convinced that he has done his best and cannot make the sale without undue expenditure of time and effort.

There are very good dealers who make not more than three calls on a prospect

The best way to tell the sales story should be set down on paper and followed as closely as conditions permit



on the principle that if the man cannot be sold in three calls, the salesman cannot sell him at all. One of these dealers is firm in the belief that there is no reason why the prospect should not be sold the first time he is seen.

The sales story.—With every car there is a best way for presenting the story of the car. This has been well worked out by the Mitchell company and is something to which attention should be paid by every dealers' organization. The correct psychological presentation of a car is to show first the whole car, and then, systematically, go to the various parts, and always bear this in mind, that more and more the mechanical details are becoming a less important part of the story. The enormous amount of advertising done by the automobile industry has convinced the public that any well-known car will run and there is no need for the salesman to waste his time on that phase of a story.

Sales meetings.—Every morning during the selling season, the salesmen

should meet for 10 or 15 minutes. At this time, any ideas any man may have should be brought out for the benefit of the rest, sales that have not been made should be analyzed, and these meetings should be made a regular school. They should be called promptly in the morning and each man should be impressed with the fact that if he is late, he is interfering with the work of the other men and is not playing fair with them.

Analyze sales.—The dealer or his sales-manager should study the sales results. He should know how many cars each man is selling, what model each man is selling, what model is going best, what cars are in stock or on the way and can be delivered, what sales are yielding the most profit, how orders are keeping up with the factory's shipping schedule, which salesman is making the most sales without trading, and many other equally important points. The study of these things will enable the manager to keep things running in the most efficient way, and it is work of this kind that the manager is for. He should spend all his time planning and directing.

Curves.—Curves on plotting paper are a ready reference as to the condition of the business. If any dealer is in doubt as to how to go at this, MOTOR WORLD will be pleased to answer any questions and show him how to plot a curve. The curve of last year's business should be set up along side the curve of this year's business and an effort should be made to make this year's curve go higher than last year's. Curves can be plotted for the work of the individual salesman and for a thousand and one different phases of the business.

Sales reports.—Each salesman should be required to report daily on his work. These reports preferably should be turned in before, say 9 in the morning, perhaps 8.30, according to whatever time the men are supposed to show up. The manager should study these reports and see that all information is transferred to the prospect file.

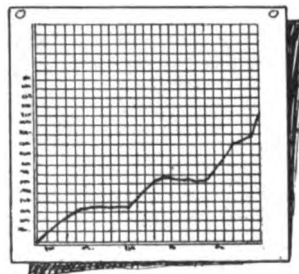
Contests.—Contests are of greatest value when business is dull, such as during the winter, and on the same principle, a sedan contest will be desirable during the summer because, normally, the sale of touring cars far outruns the sale of sedans. These contests can take the form of an automobile race, an aeroplane race, a ball game or any other sport. On the wall should be a picture of the game with pictures of the men so progress of the contest can be seen at all times. Prizes should include something besides money, because the average salesman does not work his best for a mere money prize. He wants honor or distinction and this may be provided by giving a watch fob, a cup, a watch or a trip to the factory or some summer resort.

Tours.—The dealer may get publicity and create good will among his owners by promoting tours. For instance, the Chalmers dealer might hold a Chalmers tour. Or a dealer might route a tour and have a description of a route printed and distribute the data in a book or have it run in a Saturday newspaper. The

zero on the speedometer would, of course, be in front of the dealer's place of business and all who took the tour would have to start in front of the dealer's salesroom.

Lectures.—Lectures on subjects in which motorists are interested will attract attention and possibly put the dealer in touch with some good prospects. These lectures can be thrown open to the whole public, not being confined to the dealer's owners.

This is how a business curve looks. When the figures go up the line runs up. Looks interesting, doesn't it?



Receptions and openings.—Spring openings and mid-summer receptions, with flowers, an orchestra and classy invitations, will bring many good prospects to the dealer. The invitations may be sent to the whole list or to a selected prospect list.

Testimonials.—Testimonial letters are one of the best pieces of sales literature that a dealer can secure. These should

Service

VOLUMES have been written about service and the thing has been talked about until the word is like a red flag to many owners and dealers and in a multitude of cases the word means nothing at all.

Nevertheless, a dealer must give service, and this does not mean donating parts to car owners. It means helping a car owner to keep his car running in a satisfactory manner and charging the owner for whatever is done. The great essential is promptness and square dealing. Andy Auble, of Akron, says service is "giving a man what he wants when he wants it, and charging him for it."

The service department should always keep promises if it makes any at all, and should have a capable manager. If the manager is not a good contact point, the dealer should engage a man to do nothing but meet owners, help adjust complaints and keep things running smoothly. One Western dealer hired an extremely affable waiter for this work.

Good workmanship is necessary, and for this there must be good men. To add dignity to this establishment, it is well to dress the men in overall uniforms, with the name of the dealer or the car on the jacket.

The service car may be made a good advertisement if it is painted red or white or some other striking color and fixed up like the emergency car of a gas or electric light company. It should then be equipped with a crew that can get out on a job in the shortest possible time and fix an owner up quickly.

be obtained from influential and well-known people and should be reproduced for general distribution. One may be attached to one of the letters in the follow-up series, or it may be made the subject of a special letter. In case a salesman had a particularly tough prospect from whom he wished to get a reply he might even enclose the original of the testimonial letter and write a special letter to go with it, stating that it is an original letter from Mr. So and So, and asking that it be enclosed in the return stamped envelope when the prospect has read it. The prospect will be under obligations to return this letter and perhaps it may help him overcome some of his unwillingness to communicate with the dealer.

Road signs.—Large signs at the intersections of roads and also signs bearing the dealer's advertisement and the mileage to his town are good advertising.

Billboards.—Billboards generally are part of a service, and are leased at a certain rate. If the billboards are in good locations, they are good advertising.

Electric signs.—On the dealer's place of business should be an electric sign with the name of himself or the car, or both. In large cities, electric sign advertising on the roofs of buildings has proven profitable for successful dealers.

Newspaper advertising.—During the busy season when competition is keen every car dealer should use the newspapers. He should use them consistently, every day or every other day or at some other regular intervals. He should not run an ad. every once a month and expect to get big returns from it. It is well, at the beginning of the season, to estimate how much you will spend for advertising and lay out a schedule so that you will know how much you are going to spend every week or month and just how much space is to be used and when.

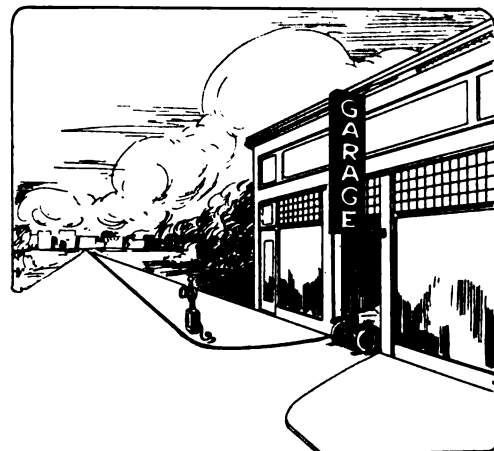
Special windows.—The streets are full of motorists and prospects at this time of the year and special displays will attract great attention. Dodge dealers have used the Dodge in Death Valley and other cars have been shown in striking settings, many of which were designed by the dealers themselves. Any display that is used should be changed frequently.

Salesroom display.—Study the arrangement that is most striking to the prospect as he enters the door. Do not crowd the salesroom with cars. Have only enough to show your complete line provided you have room for the whole line. Keep the place well lighted at night.

Window signs.—Window signs are of many kinds. You can stretch cloth over a wooden frame and paint a fresh sign frequently, or you can use a blackboard or anyone of a variety of signs on the market with easily changeable letters. Also, in the window, place newspaper clippings referring to your car, copies of your own advertisements and of advertising from trade papers and magazines and keep this assortment fresh and new so it will keep people always watching your windows.

How To

Get All of Your Share of Garage Business



TO get all of your share of the garage business this summer you must first get your place in shape, as told on previous pages of this issue, and throughout the summer must maintain certain standards of practice.

You must so arrange that there will be safety for the cars in your garage. There should be no opportunity for bent fenders or scratched bodies.

Those of your employees who do mechanical work should wear overalls; preferably they should be uniforms bearing the name of your business.

You should maintain one price for all customers. Do not try to charge the tourist one price and the home town customer a lesser price. This is not uncommon practice and should be eliminated.

You should maintain in your garage a register in

which are put the names of all your customers, the make and number of car and the customer's address, so you can circularize him later.

You should provide one or more business chasers, young men who will solicit business for you at hotels in the downtown section, on the incoming roads, or elsewhere.

You should maintain a high-grade place of business and not misrepresent things to the public. Some garages solicit business at hotels and the tourist, when he gets to the garage, finds that it is a very desirable place to keep his car.

Your trouble car should be in the best of condition. The public is likely to look upon your trouble car as a product of your repair shop, and if the trouble car looks like a wreck they may consider your shop a poor place.

ADVERTISING and Display—There are all kinds of possibilities for getting garage business through advertising and display, and the garage which takes advantage of every opportunity of this kind will get the season's business, provided the garage is any good.

Road Signs—The main roads for 10 to 30 miles from town should be posted with garage signs. These should be preferably of good size, not less than 2 x 3, and should give the distance to town. Small, cheap paper signs may be pasted on stone walls and board fences with waterproof paste. The old style vertical plank mile post is also a good type.

Garage Signs—A large electric sign on which the word "GARAGE" stands out conspicuously should be posted in a position where it may be seen as far as possible. Tourists entering town, especially in the evening, are guided by these signs, and if this sign hooks up with your road signs, you have paved the way for a lot of trade.

Hotel Signs—You may be able to place signs or booklets in hotels and perhaps can make arrangements with hotels to have your garage recommended.

Newspaper Advertising—In advertising a garage in newspapers, there should be a definite plan. The garageman should not jump in and use large space at long intervals. Rather, he should use copy of a distinctive nature persistently and should select the paper which has a circulation among car owners and business men. Large space in a paper with a cheap circulation would be a waste of money. In small towns, where there are not many papers and the advertising rates are low, larger space can be used with frequency.

In this advertising the garageman should adopt a business principle or motto or catch word and use it in his advertising throughout. There are hundreds of garages and, in the mind of the motorist, most of them are alike. The object of this advertising would be to

render the advertiser's garage distinctive.

Maps—As literature for general distribution, small folders with maps are desirable. These may show the roads to the next town or the down-town section of the streets in or out of the city or both, and should include a heavy black spot showing the location of the garage and how to get there.

Letters—Every garage should have a mailing list consisting of car owners in the city and county, and also all that can be secured from other towns, especially desirable being those who have toured through the city on previous occasions. These latter names may be obtained from keeping a garage register. If a tourist has been well treated once at the garage and receives a letter inviting him to call again, he is quite likely to do so if he comes that way. Testimonial letters from car owners may be effectively used.

Mailing Inserts—All kinds of literature of a mailable size may be obtained from manufacturers and the garageman may have some printed advertising his own business. These may be slipped into outgoing mail and most certainly should be included with monthly statements.

Put road signs everywhere. They are good business getters.



Good Will—The good will of a tourist is one of the best means of increasing business. Ask each customer to recommend the garage if he is satisfied with his service, and then make sure he is satisfied. Give to each departing tourist a booklet or folder containing a stamped return card, on which he is requested to note his comments as to the service he has received, and mail the card at his first stop. On this will be provision for his name and address and you have another name for your mailing list. In case the card comes back with a complaint noted on it, write to the tourist, thank him and tell him you are having the complaint remedied. Then be sure that you follow this complaint up and make it impossible for it to happen again.

Curb Advertising—Place advertising literature in cars that you find along the curbs in downtown sections and perhaps tie an advertising tag to the steering wheel.

Route Tours—As was explained under the selling of cars, route tours for week ends, starting the speedometer at zero in front of your garage. Have this routing printed in a Saturday paper. Sun-



Make a map of the city and county and show where your garage is

day-tourists will then have to start from in front of your garage if they wish to start the tour, and many of them will buy gasoline and other supplies from you.

Motorists' Headquarters—Make your garage a headquarters for the motorists of your town. Have on tap all kinds of information. Have your shop one of the best. Get them into the habit of coming to you for anything they want to know, and in your advertising run a line to the effect that they may call you up and consult you on any matter whatsoever.

Bargains—As a means of attracting attention run a bargain sale now and then for a whole day or between certain hours on a certain day, sell gasoline at a bargain price, although it is well not to go below cost. You may also run a bargain on a certain accessory for a day or part of a day. It is imperative, however, that when the bargain period is over, the price be put back and the bargain rate not be given under any consideration. If the bargain price is given outside the bargain period, it becomes price cutting and ceases to become a bargain.

Billboards—Billboard advertising may be used if advantageous locations can be secured and the cost is not prohibitive.

These Things You Must Do If—

CERTAIN things, if done, will build business for the garageman. One of the most important is the service he renders to the public, and service in this case covers a multitude of things.

The big consideration to bear in mind is that you should make the way of the customer easy. There should not be petty annoyances that jar on him and lessen his good will toward you.

A courtesy man can more than earn his salary. He should stand at the front of the garage and see to it that every customer is promptly and politely served, gets what he wants when he wants it and does not have to go through the annoying waits so common in many garages. This man can sell accessories enough to make himself a profitable investment. The plan has been tried out by successful garagemen.

Every employee should be instructed that promptness and courtesy are more important than the work the man does. One discourteous act may take all the benefit out of a good mechanical job.

Fair dealing should be a rule; there should be no overcharging. If you know that your system of charges is not making you any money, do not add false items. Revise your system, learn your costs and have your charges such that you make a profit every time you make a deal.

Your stock of parts and accessories

Curb Equipment

MAKE it easy for customers to buy gasoline. Have a curb pump or else a tank which stands at the curb. The tourist wants to get his gasoline and get away again as soon as possible, and the quicker you can take care of him the better he will like it. If you have air at the curb, you should have a hose long enough to serve all the tires or one tire without moving the car.

The most important part of curb equipment is the man who takes care of it. School him now in prompt service. If there is much business, perhaps it will take all his time to do this work. He certainly should be at the pump almost as soon as a car stops.

Accessory Case

A small accessory case beside the curb pump will put a few touring accessories where they can't help but be seen by the motorist. These should be changed frequently and the curb man should be thoroughly instructed in how to sell them. He should bring the motorist's attention to some one of them at the close of the gasoline sale. In case the curb man has to go inside to get change, it would be well for some other man to step out at this point and endeavor to sell accessories.

should be complete. Being out of goods not only loses you the immediate sale, but causes the customer to want to go some other place the next time he wants anything.

Your elevator service, unless carefully watched, may be productive of damaged cars and annoying waits.

In cleaning a large number of cars, employees may be inclined to hurry over them and not leave them in good condition. This should be strictly prohibited. There should be an inspection to be sure things are right. Be sure to clean the tops of enclosed cars and the tops of touring cars when they need it.

When a car comes in for transient storage tie a tag on it and give the owner half the tag as a claim check. Do not let the car go out unless the check is presented. On the part of the tag that is tagged to the car have the words, Wash, Polish and so forth, and check any such work that is to be done.

Have your garage rates such that there is a profit in them, and then give free tire inflation for all cars on storage. Little things like this make a wonderful impression.

When a party of tourists drives to



If stock seems slow to move, hold a bargain sale. Turnover counts

the garage and then wishes to go to a hotel, have a car to take them there.

Inspect Stored Cars—Look over every car that comes into the garage and see if it doesn't need some vulcanizing, small repairs or some accessories. Elsewhere in this issue is a chart showing the quickest way to inspect a car for possible business.

Vulcanizing—There is profit in vulcanizing, but if you attempt to handle it, you should have the equipment and men for it, and should be able to turn out the work promptly. If you have no facilities yourself you should make arrangements with a tire shop for good and prompt work.

Repairing—If you cannot have a good repairshop, you might just as well have none, because a poor repairshop is a damage to a business. There is no reason, however, why a garageman cannot have a shop that will turn out good work if he will give his attention to the matter.

Curb Service—At the curb should be gas and air equipment and a man to take care of it. He should be out and on the job as soon as the car stops, should give prompt service, should be careful not to spill gasoline on the cars, and should enable the cars to get away in the shortest possible time. Elsewhere in this issue are remarks on the sale of accessories to transients who stop for curb service.

Some Leaks I Have Plugged

Here Are 78 Ways Dealers, Garagemen and Repairmen Have Kept Dollars from Slipping Away

1—Tire Changing

We have made a big improvement in tire changing. This is now done in a concrete court back of the building where there is plenty of daylight and the work is much more rapid.—H. P. Seymour, Universal Auto Co., Hartford, Conn.

2—Checking Lost Minutes

Lost time may be checked through a time recorder. We have had an International time recorder for somewhat over a year and it has paid for itself many times over, in fact, we could not now do without it. We hire all our mechanics by the hour and use for their time-card a rose-colored card on which they ring in and out as they come and leave their work and we use the same recorder for work done on customers' cars, but use in this case a white card. The mechanic rings whenever he starts work on a customer's car and rings out if he is called away or finishes the work, and thereby gives us a check which is absolutely correct to the minute and eliminates disputes.—C. E. Lind, Lind Automobile Co., Twin Falls, Idaho.

3—Forgotten Coupon Books

We give a 50-hour service coupon book and owners frequently forgot them and left them home. We are tightening up on this and will effect quite a saving.—Edwin H. Richardson, Thrall-Colton Motor Car Co., Hartford, Conn.

4—Express Shipments

To accommodate customers, cars have sometimes been shipped by express. Some customers would stand part of this expense and others flatly refused. A new rule is that customers must pay for anything in excess of freight rates.—Edwin H. Richardson, Thrall-Colton Motor Car Co., Hartford, Conn.

5—Scattered Departments

Sales, service, accessory and repair departments used to be separated and in different locations and the expense of trucking and communicating was considerable. All departments are now under

one roof.—H. P. Seymour, Universal Auto Co., Hartford, Conn.

6—Telephone Delays

With all departments now concentrated under one roof, incoming calls quickly reach the desired person. On outgoing calls we now have central get the number and do not bother with the telephone until the number is ready.—H. P. Seymour, Universal Auto Co., Hartford, Conn.

7—Economizing Time

A card file system in the sales department saves lots of waste time for the salesmen. Each salesman reports daily. He may have called on a certain prospect. The card girl goes to the master file and if the name is already entered, it bears the salesman's name. This prevents salesmen getting crossed in their work. The master cards are yellow, new live prospect sub cards are white, truck cards, blue and used cars, pink. The same colors predominate in this order throughout the whole business system. One may refer to a master card and then go to the sub file and there find all the salesman's reports, which are made out daily in triplicate. The salesman may report that a demonstration is due April 25. The first thing the salesmanager does when he gets to the office the morning of the 25th is to refer to his memory file. He notifies the salesman that the demonstration is due, and the salesman makes it. The master file also serves as a mailing list. This system has speeded up operations to such an extent and resulted in such simplification that one girl less is needed on the card file. The saving effected is about \$500 a year.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

8—Checking Advertising

An accurate record is kept of advertising even to the smallest classified ads. It is known at all times what ads. are appearing and when they are to stop. All electrotypes, folders, catalogs and literature are indexed. There is no guess work and all expenditures in this direction are carefully supervised.—William

Ben Franklin Said

"A penny saved is a penny earned." Quite likely, however, all of us in the motor car business are too busy earning pennies to give much attention to saving them. But it can be done, and the men who have contributed these ideas know that it is worth while.

H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

9—Overtime

A garageman saved annoyance and saved money by posting this notice: "This shop closes at 5.30. Work desired later must be paid for at overtime rates."—Los Angeles.

10—Cash Discounts

Paying cash and securing the discounts when buying supplies netted a considerable sum for the operation of a large garage.—Los Angeles.

11—Demonstrating Costs

The cost of operating four demonstrating cars was reduced materially by requiring salesmen to schedule the name of the prospect in addition to the time of the demonstration and then make a report afterward on the progress of the sale. Previously, the salesman merely booked up the car for an hour or two and the dealer did not know what he was doing with it.—Los Angeles.

12—Circular Letter Work

It is cheaper to have a multigraphing company get out circular letters than to upset the routine of the whole office for this purpose.—Los Angeles.

13—Freight on Defective Parts

Car owners are now required to pay the freight when defective parts from a car are replaced. This saves many dollars in the course of a year for a dealer.—Los Angeles.

14—Oil Leavings

The manager of a factory branch saved 100 gal. of cylinder oil last year by draining the barrels and containers a second time. This followed his observation that when an empty barrel was broken up, more than a quart of oil seemed to be in the bottom.—Los Angeles.

15—Tire Waste

A garageman has been saving considerable by carefully repairing and selling

casings that are discarded by owners.—Los Angeles.

16—Advertising Rates

Newspapers have local and foreign rates which means that a local advertiser often has to pay less than the out-of-town man, but if this fact is known, however, and an effort made, the lower rate can be secured.—Los Angeles.

17—Repainting Savings

One dealer saved \$5 on each repainting job over the price he had paid on 47 other jobs by securing bids from paintshops. Formerly he had sent the work out without bids.—Los Angeles.

18—Complete Record of Cars

We have installed a small desk card file, 3 x 5 standard, giving the number of cars in stock, the number being unloaded and the number en route, which has resulted in a saving of time.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

19—Accounting for Tools

Every man in our machine and service departments has a number of brass checks which bear his own number. If he wants a valve-reseating tool he goes to the tool department, takes the tool and deposits his check in the space from which the tool was removed. In this way the toolkeeper knows who has the tool and every man is accountable for the tools.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

20—Installed Welding Outfit

Oxy-welding done outside required a lot of time and cost money, so we have installed a welding outfit, which is easily moved from one place to another.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

21—Reduced Cost of Repairshop Stock

By buying bolts, nuts, spring washers, cotters, etc., in large quantities, the cost was reduced from 3 to 4 cents to half a cent each, or even less.—William H. Vinal, Russell P. Taber, Hartford, Conn.

22—Getting Owner's O.K.

A simple checking system has eliminated disputes over the amount of work done on cars, saved many customers and pleased customers. A yellow ticket is

attached to the car to be repaired, with instructions to the service man who does the work. When the owner calls for his car he is shown a statement of the amount of work done. Between the time the car leaves the repair department and the owner receives it downstairs, the duplicate record has been sent to the main office through a metal chute, the costs estimated and the bill made out. The owner is acquainted with the fact that the presentation of the record is not a demand for payment then and there, but rather a check on work, which he must O.K.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

23—Opening Charge Accounts

Much attention is given new trade. If a man wants to open a charge account, he is looked up in the credit guide of local compilation, and if his record is good he is accommodated. Losses have been materially reduced by this method.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

24—Paint Saves Light

We had large electric light bills despite the fact that we had light on three sides. If a car was not in the direct light from the windows, an inspection lamp was used because what little light came through the windows was quickly absorbed by the dark walls. And at night the tungsten lights did little but show the location of the fixtures themselves. One day one of the men in an idle streak, having placed everything in customary order, started to whitewash the walls and ceiling. The results were so good after the first coat that he put on another. This threw the dirty windows into relief and they were cleaned. The lights were next polished and cleaned and fitted with white reflectors. This resulted in an immediate decrease in the electric light bills and increased efficiency of the workmen.—S. R. Barber, The Hodskin Garage, Canton, N. Y.

25—Each Salesman Owns Demonstrator

Last year I maintained 10 demonstrating cars. Every two months these had to be renewed, for in that time the cars ran down so fast that a new car could never be sold on their performance. Whenever a demonstrator was required, the salesman took the best looking car, ran it with about as much interest as a motorman takes in his trolley, abused

it, over-did the demonstration and used the cars for joy riding. So I decided to make demonstrations more of a personal proposition and required each salesman to buy his own demonstrator, taking part payment in cash and notes were taken for any necessary balance. Since then oil, gas and tire bills have been reduced, a joy ride is now unknown and the cars are kept in the pink of condition.—Detroit.

26—Loss of Demonstrator Tools

Tools were constantly being taken from demonstrators and from customers' cars. Of course, no one intended to steal them, but the result was the same. Now every car that comes into the shop, for a day or more, is stripped of tools by the stockman, who makes a list of every tool found in the car and mails a copy of it to the owner. When the car is ready to be taken out the tools are replaced and checked against the list. If the tools do not check up the stockman is liable and must personally make good.—Siegel-Zechendorfer Co., Detroit (Cole, Peerless and Velie).

27—Pay for Service

Carbon burning and valve grinding were formerly on our free service list. But owners would use a cheap grade of oil and expect the service station to bear the burden. The labor cost to the company was all out of proportion to the sales value of the service. Hence carbon burning and valve grinding were placed on a labor rate basis. Owners who had been accustomed to free service naturally kicked at first, but soon became used to paying for this work.—Siegel-Zechendorfer Co., Detroit (Cole, Peerless and Velie).

28—Lamps in Cages

Electric lamps used in the battery charging set were constantly disappearing. New lamps would be substituted only to disappear next day. The mechanics were taking the lamps from the set for their inspection purposes—to replace the ones they had carelessly broken. The theft of the lamps was stopped by placing all lights beneath a wire cage, which was padlocked in place.—Siegel-Zechendorfer Co., Detroit (Cole, Peerless and Velie).

29—Breakage of Inspection Lamps

A supply of inspection lamps with extension cords and guards was purchased

DATE		191		Gallons Bought		Forward		Gallons in Tank		Gallons Sold		Balance in Tank		Cash or Charge		Amount		Workman's Initial	
Name of Purchaser	Col. Sold	Rep. No.																	

Every time an employee of P. J. Thue, Cannon Falls, Minn., sells gas it must be entered on a form like this. It stops leaks.

DATE		1917		Gallons Bought		Forward		Gallons in Tank		Gallons Sold		Balance in Tank		Cash or Charge		Amount		Workman's Initial	
Name of Purchaser	Col. Sold	Rep. No.																	

The Slocum-Hanna Co., Syracuse, N. Y., uses a form like this for keeping track of time on demonstrations.

and placed in the tool room. These were issued to the mechanics on receipt of a check, as if the lamps were tools. In case of breakage, a new lamp was issued without question if the workman returned the outfit together with the lamp guard. If, however, he had lost his lamp guard, the new lamp was charged to his account.—Siegel-Zechendorfer Co., Detroit (Cole, Peerless and Velie).

30—Gasoline Wastage

Someone was always forgetting to set down a sale, and gasoline was also being wasted in the shop. The gasoline and oil were, therefore, given into the charge of one man, and any loss would be definitely blamed upon him. This man serves customers and workmen from portable tanks that are filled from storage tanks. These portable tanks are provided with gages and locks and any difference between the amount placed in the tank and the amount reported sold is charged to the tank man.—Siegel-Zechendorfer Co., Detroit (Cole, Peerless and Velie).

31—Charged for Tire Service

In my vulcanizing department no charge was being made for removing the tire from the rim and inflating it. I plugged the leak by fixing a price on this extra work in addition to the price of the vulcanized patch.—Theodore F. Kuhn, Ted Kuhn's Garage, New Haven, Mo.

32—Installed Private Office

I lost several sales because I had no private office to put the final touches on the sale. I am now putting up a private office, where I can be seen with my prospect but not heard.—Theodore F. Kuhn, Ted Kuhn's Garage, New Haven, Mo.

33—Employed Best Mechanics

The greatest saving in the Colt-Stratton service department during the past year strangely enough was brought about by our determination to use none but the best mechanics. So we did away with a large number of fairly good mechanics and replaced them with a smaller number of high-grade and consequently higher-priced men. The saving resulted, however, in our being able to turn out more Dodge and Cole cars daily and with less confusion than was ever before possible.—William McIlvrid, Jr., Service Manager, Colt-Stratton Co., New York.

34—To Guard Against Leaks

Our three departments are looked after, the repair department by the foreman, assistant foreman and a book-keeper; the accessory department by the stock clerk and his assistant, and the car sales department is in my charge, with the assistance of six salesmen, one acting as head in my absence. In addition, there is a general office to take care of the correspondence and act as a clearing house for the three departments, and the sales and expense accounts of each department are kept sep-

arate and audited monthly.—J. W. Richley, J. W. Richley Auto Co., York, Pa.

35—Making Repair Work Pay

If the following plan is used, repair work has got to pay. I have tried several systems of keeping time reports straight and have installed the card outlined, which shows that Starr began work at 8 a.m. and stopped at 5 p.m., and an exact record is kept of his time for every minute during the day. In the other column is placed the material used and for what particular part of the car.—C. H. Kenyon, Kenyon's Garage, New London, Conn.

36—Used Oil to Start Fire

I found my mechanics using lubricating oil to start the fire in the morning and stopped this by buying kindling.—Theodore F. Kuhn, Ted Kuhn's Garage, New Haven, Mo.

37—Demonstrator Form

We have found it profitable to design a form for keeping track of our demonstrators, with the following headings: Car and Date on one line, and underneath columns headed Time, in which half hours are printed from 8 to 8; Prospect, the name of the prospect is placed opposite the printed time; Will Return; Return Reading, the reading of the day before is brought forward; Mileage, in which is placed the distance covered, and Signed, in which column is placed the name of the salesman. This cut our demonstrating expense from \$700 to \$100 a month.—Slocum-Hanna Motors Co., Syracuse, N. Y., Charles G. Hanna.

38—Demonstrating Allowance

We give our salesman a demonstrating allowance of \$10 per car on every new car they sell, and charge them 5 cents per mile for use of the car. If they are careful, they will make money on this \$10 allowance. If not, joy riding and long demonstrations will prove expensive to them. During the year this has been in use it has cost them between \$8 and \$10 per sale for demonstrating.—Charles G. Hanna, Slocum-Hanna Motors Co., Syracuse, N. Y.

39—Used Car Proposition

The most satisfactory way to sell used cars is to have the price right and then sell them, agreeing to take them back any time within 12 months from date at the price paid, applying on a new car. This insures absolute list price for every thing on the new car, and makes the buyer feel that he has no reason to complain. If you take the car back, it is understood that the tires, etc., must be in practically the same condition as when sold, natural wear excepted. In four years I have only taken back one used car with this proposition.—Norman Chilsen, Merrill, Wis.

40—Sell Only to Make Money.

Don't sell cars just to make sales but to make money.—Norman Chilsen, Merrill, Wis.

41—Missing Parts

Equipment on new cars not delivered immediately is apt to become mislaid unless checked and taken care of. All this equipment is now locked in boxes. The man who has charge of the deliveries has the keys, and when the cars are ready for delivery the equipment is brought out. These boxes cost us \$1.75 each, but will last ten years or more and will save us hundreds of dollars.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

42—Saving the Porter's Time

There is an 8-ft. strip of carpet just inside the salesroom door. This saves the porter many hours of labor which he can spend to better advantage elsewhere about the building. There is the suggestion to every mind that the carpet is something to wipe one's feet on, and people will come off a dry concrete sidewalk and instinctively scuff their feet on the carpet. This also saves our Mosaic floor.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

43—Paying Commission

I have put my shop on a paying basis this year, by paying each man 75 per cent of all money taken in for his individual work. In doing this it encourages him to get in all the time he can, and the more he earns the more I make.—Manton, Mich.

44—Charges for Cleaning

Last year the shop lost money by undercharging for work and neglecting to itemize and charge for gasoline used in cleaning gears and for cup grease, cotter pins, bolts, etc. We now charge for this.—Manton, Mich.

45—Demonstrator Mileage

We have cut down the depreciation on the demonstrators to an average of \$75 by only running each demonstrator from 700 to 2000 miles. That cuts the demonstrating costs down to about 5 cents per mile on the average for the use of the car. Of course the car must be kept in the pink of condition to sell with so little depreciation, but this also increases its value as a demonstrator.—Wetmore-Quinn, Paige, Detroit.

46—Long Demonstrations

We now limit our demonstrations to a half hour instead of a half day or a full day, as formerly. We know we can show a prospect all there is to show in half an hour, and with the shorter demonstration we are able to demonstrate to more people in a day. We also have found that long demonstrations tire people, and at the end they are unwilling to talk about the car.—A. C. Hine Co., Hartford, Conn.

47—Lighting Waste

We have every light in the garage and service station on a separate switch, and a man now turns on no more than he needs. He does not have to light half the building every time he wants light.—

William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

48—Using Daylight

We are saving \$10 to \$12 a month by having moved the advertising and sales offices from the west to the east side of the building, where there is natural light all day. We do not have to turn on the electric lights until sundown. While the removal of the telephone will cost something, this will be saved in one month, and the 'phone in its new location will pay for itself in convenience. The girls do better work without the electric lights and eyestrain and headaches are eliminated.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

49—Charging for Small Parts

Instead of giving away cotter pins, lock washers and other similar small parts, we now charge for them.—C. R. Pierson, Salineville, Ohio.

50—Charging for Use of Tools

We now charge owners 25 cents for the use of the washrack and hose when they wish to wash their own cars. We insist they clean up the stand when through washing, which saves the time of our employees.—C. R. Pierson, Salineville, Ohio.

51—Loaning Tire Gages

Instead of loaning an owner a tire gage we now sell him one.—C. R. Pierson, Salineville, Ohio.

52—Small Quantity Sales

When a customer buys less than a gallon of gasoline, we charge double price.—C. R. Pierson, Salineville, Ohio.

53—Demonstrator Depreciation

We now allow our demonstrators to be driven only 5000 miles, then we sell them. In this way our demonstrators are always newer and we do not have to suffer such a loss when we resell them.—A. C. Hine Co., Hartford, Conn.

54—Double Checking Accessories

In our accessory department all goods are double checked on receipt and double checked again on delivery. At night no one is allowed to go home until every order is filled.—A. C. Hine Co., Hartford, Conn.

55—Combining Inside Service

We have effected several economies in three departments by consolidating delivery service ways of getting outside work done, delivery of cars and teaching.—A. C. Hine Co., Hartford, Conn.

56—Demonstrating Wastes

We now restrict our salesmen to the use of cars to a certain amount of gas and oil a week, a certain amount of labor on the cars and a certain amount of washing. This cuts the demonstrating cost.—A. C. Hine Co., Hartford, Conn.

57—Forgotten Charges

I secured a McCaskey system and since they have avoided disputes with

my customers and have not lost money through forgetting to enter charges.—P. J. Thur, Cannon Falls, Minn.

58—Leakage in Time

I stopped leakage in the time of mechanics by hiring my mechanics, office girl and shop helpers on weekly salaries and a small commission on what they earned and also on the sales they make. The salary is paid weekly and the commission monthly. This idea brings several good results. It makes one work better and be more prompt in making charges and records of their work and sales. Hiring is by contract, which also stopped a leak in our accessory department.—P. J. Thue, Cannon Falls, Minn.

59—Unwise Trades

We used to trade without proper appraisals and often we found that the cars were badly defective and that we had to spend a lot of money to put them in shape. Now we have an expert appraiser to carefully inspect all cars before they are taken in.—A. C. Hine Co., Hartford, Conn.

60—Careless Trading

A Kansas City dealer used to trade for anything. Now he will trade only for cars that have considerable value in them. He will even pass up a sale rather than take in junk.—Kansas City.

61—Trading Losses

Instead of trading promiscuously, several Kansas City dealers are accepting no cars in exchange unless they are 75 per cent sure they have a prospect who may buy the car. In case a prospect wants to trade, the used car manager endeavors practically to make the sale of the old car before it is taken in.

62—Lost Tools

I have assigned a set of hand tools to each workman and charged them up to him. When the workman turns them in he gets full credit, otherwise they are charged to his salary.—P. J. Thue, Cannon Falls, Minn.

63—Gasoline Leaks

We have a gasoline record sheet on a board on the curb pump, and every time gasoline is pumped it is entered on this sheet, and the sheet record is compared with the pump record.—P. J. Thue, Cannon Falls, Minn.

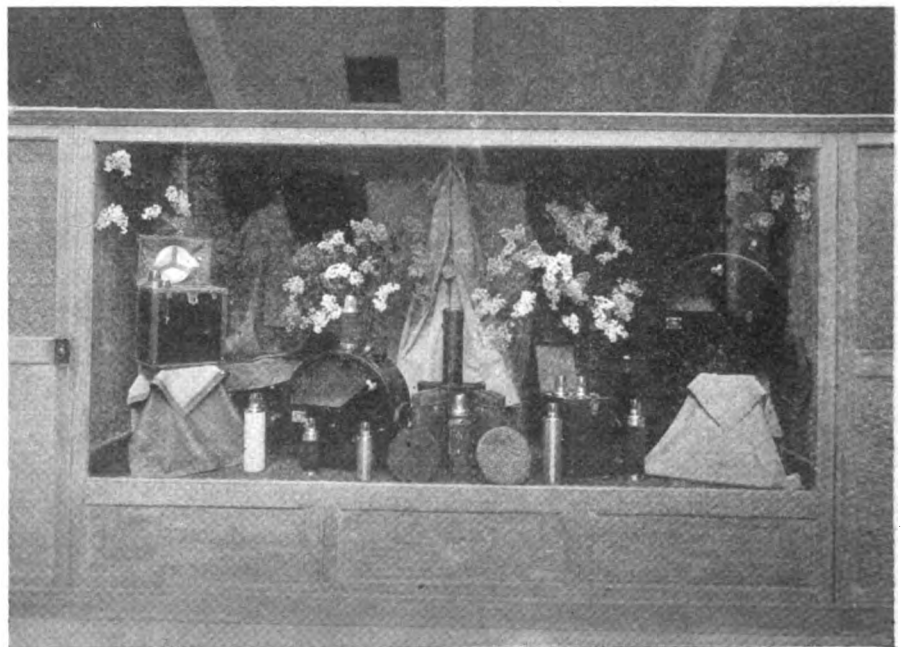
64—Wasted Time

The men used to pay little attention to the time they were supposed to be at work. The hours are from 8 a.m. to 6 p.m. The difference of 15 minutes or half an hour in arriving in the morning did not cause much alarm, but when 15 employees kill a half hour each it amounts, practically, to a day's work for one man. It was the usual custom for some of the men to arrive about 8.15 or later. Then they would stall and josh and tell each other what they did the night before. A new rule was made: "On the job and ready for business at 8 o'clock sharp, or don't hang up your hat." When the men work overtime they are paid for it.—William Bradshaw, Bradshaw Co., Seattle.

65—Lax Stock Records

Workmen used to get small items from the stockroom and forget to enter them. Now the door is locked and the workman has to get the key from the superintendent or the cashier and make out a slip for what he wants. After that the inventory and requisition records furnish a check.—Kansas City.

Attractive Salesroom Accessory Display



The Mount & Robertson Co., New York, manufacturer of office partitions, has suggested this arrangement for a car salesroom. It is built entirely of office partitions

66—Used Car Losses

Used cars used to be handled by the new car sales department. Now they are handled by a separate department, which is charged with its own costs and overhead. The department manager is required to produce a profit.—Missouri-Haynes Motor Co., Kansas City.

67—Poor Stock Keeping

The stockroom was being mismanaged by a \$12 a week boy. Anyone was allowed to help himself and no check was kept on the stock. After the supply was exhausted more goods were re-ordered. The leaks amounted to \$400 a year on a \$40,000 stock. The stock boy was given a different job and a man, heavily bonded, was given the position at a commensurate salary. A strict requisition system is in effect.—William Bradshaw, Bradshaw & Co., Seattle.

68—Lost Batteries

No attention had been paid to the batteries in new or used cars. Frequently batteries were missing. Now as soon as cars are received the batteries are sent to a service station nearby at a nominal storage rental, and when one is needed it is withdrawn the same as a deposit from a bank. This loss amounted to more than \$1,200 a year.—William Bradshaw, Bradshaw Co., Seattle.

69—Missing Equipment

A car would be driven into the repairshop apparently well equipped. Later the horn, magneto, tail light or perhaps a tire would be missing, and if we could not find it we would have to pay for it. Now as soon as a car is received, the equipment is checked and written on a typewriter and pasted on the right-hand side of the windshield. When a car is ready for the owner or is run on to the floor to be sold, this list must check up with the equipment or the superintendent of the repairshop is responsible.—William Bradshaw, Bradshaw Co., Seattle.

70—Check Stored Cars

All cars should be numbered and a check should be kept on them to prevent their being used without the consent of the owners.—Wilbur W. Marmaduke, Marmaduke Motor Co., Wilmington.

71—Check Purchases and Sales

Everything that comes in should be checked and indexed and a record should be kept of everything that goes out, whether cars, parts, accessories or gasoline. This is a sure cure for leakage in goods.—Enoch Moore, Jr., Moore Automobile Co., Wilmington.

72—Spasmodic Advertising

Spasmodic advertising is a waste of money. Many dealers advertise when they think of it, or when solicited. The entire advertising appropriation is often spent in bunches, at show time, or on other special occasions, and the rest of the time none or little advertising is used. This is like sending out a sales letter

with no follow-up work. The dealer should calculate his advertising appropriation and plan his campaign for the year—and then follow that schedule. Small space, appearing continually, new copy, heavy type and lots of white space are the essentials of successful dealer advertising.—W. A. Biss, Parker Automobile Co., Haynes, Toledo.

73—Wasted Sales Effort

Wasted sales effort is in itself a large leak. Every salesman should have a prospect tickler, and either call on the prospect on the date recorded or else make a 'phone call and make a new appointment. Each salesman's tickler should be checked up daily by the sales manager. We also find it exceptionally effective to send out sales letters each week to every prospect, and have the salesman handling the deal personally sign each letter.—W. A. Biss, Parker Automobile Co., Haynes, Toledo.

74—Breaking Spark Plugs

Spark plugs are often accidentally broken by the workmen in the repairshop. In such cases the shop must make the breakage good. By having a box, in which all good parts of broken plugs may be thrown, parts accidentally broken may be replaced with no cost.—F. B. Smalley, Smalley Garage, Toledo.

75 — Demonstrating Abuses

The demonstrators were proving to be a serious leak. Not only did they depreciate rapidly, have a short term of useful life, but they were also used more than necessary. Hence the salesmen were made to use old cars to chase up prospects and do all of their running around. A rule was passed that only bona fide prospects were to be given demonstrations, and that demonstration was given in the car we expected to sell. The prospect feels that he is not in a doped up car and has

greater confidence. We have cut our demonstration costs to a minimum. No car is run over 100 miles—just enough to work it in.—C. J. Clapp, H. E. Throne Automobile Co. (Mitchell), Toledo.

76—Excess Telephones

By cutting out a 'phone here and there and eliminating small items that can be dispensed with, I saved \$30,000 in one year for a company with which I was previously associated. I am going to do the same thing here.—Ralph Cook, Herbert-Cook Co., Philadelphia.

77—Compare Expense Accounts

I have just had forms printed which will provide for several hundred individual expense accounts. One month will be compared with another and one year with another.—Ralph Cook, Herbert-Cook Co., Philadelphia.

78—Departmental Budgets

The department heads should be given responsibilities and required to account for the expenses of their department. Each head should give an estimate for running his department for a certain period, and if he exceeds the amount he should give the same explanation.—Ralph Cook, Herbert-Cook Co., Philadelphia.

Used Car Facts Plainly Told

FOR SALE

Make	
Model	Year
Horse Power	Wheelbase
Cylinders	Tires

REMARKS

PRICE

The Allen Motor Co., Allentown, Pa. uses this card to tell the essential facts about used cars it has for sale. The card is attached to the radiator of the car and is an effective silent salesman. The card measures 6 x 8 in. and is printed on heavy manila board.

How to Boost Accessory Sales

Sell in Sets

The Motorist Will Thank You

THE power of suggestion is great. Man's mind runs in grooves. When the motorist asks for a spark plug, his mind is in the spark plug groove. It can be jolted out of that groove by a simple suggestion and started running in the "want-a-something-else groove." Try it.

THE fact that a motorist comes into your store and asks for a tire also suggests that he may need one or more other articles which are closely allied.

More than likely he also requires a tube. If he has worn out a shoe there is a good chance that the tube is worn out also; if the shoe was blown out, there is a strong possibility that the tube was injured beyond repair.

In putting on a new tire to replace the one that failed, he may have used all his soapstone, consequently he is a prospect for more.

He may have had difficulty with the jack, and is in a good mood to purchase a new one and a better one.

He may have had trouble with his pump, and vowed he would buy another one—or possibly an engine-driven pump to take the place of the hand one. With the drudgery of pumping up the tire still fresh in his mind he is in a fine frame of mind to buy an engine-driven pump.

If the tire was rusted on the rim he will be glad to have you remind him that he might remove this difficulty by applying rim paint.

Value of Timely Suggestion

If he made the tire change on the road he may have left some of his tools behind, or he may have found that he did not have all the tools he required. While the experience is still fresh in his mind is the best time to sell him more tools.

If he had a blowout and was caught without a spare, he will appreciate the advantage of having a blowout patch.

In like manner each purchase suggests a long list of articles which come in the same classification. Take shock absorbers, for example. When a man buys shock absorbers, comfort and conveni-

ence are the foremost thoughts in his mind. He has been thinking along this line for some time before making up his mind to have the shock absorbers put on and as a result his mental attitude is most favorable for the reception of any suggestion which will increase the comfort or convenience of motoring.

To quote just one example, there is the tonneau windshield. It shields the rear seat passengers from the wind. In cool weather this means that the rear seat compartment will be warmer and more pleasant; on dusty roads, the occupants will be protected from the dust; when driving fast the disagreeable rushing of the wind in their faces will be avoided.

The motorist who has a private garage and buys 5 gal. of cylinder oil is also a good prospect for other supplies such as grease, soap, waste, towels, chamois, sponges, pails, kerosene, etc.

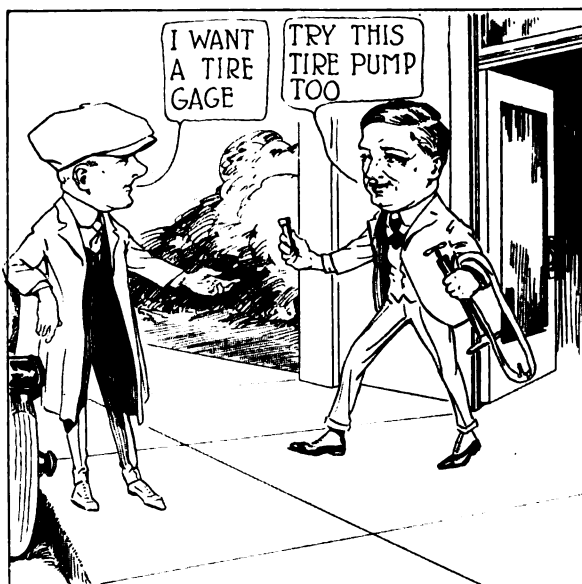
The man who takes out accident insurance is a good prospect for a bumper because he realizes the value of protection against collision. Insurance is one form and a bumper is another—and they are both necessary. The latter supplements the former. Damage amounting to less than \$25 generally is uncollectible according to the terms of the policy. Thus any slight collision, such as a bumper would be likely to ward off, is not covered by the policy. Hence the necessity for a bumper.

In the same way any article immediately suggests

several others. Many sets of articles are given herewith to illustrate the principle of selling in sets so that any dealer may use it effectively. The man who is very familiar with his stock can carry the classifications in his head, but those who cannot should tear out these pages and place them where they can be glanced at so that when a motorist calls for one thing, the opportunity of selling him several in the same category can be taken advantage of.

Selling Articles Closely Allied

There is another very important angle to selling in sets, and that is to sell a man *more than one* of the articles he asks for. If he calls for two spark plugs, persuade him to take four or six because if one plug gives out the chances are that the others will shortly. If he purchases a non-skid anticipating a blowout of the right rear, suggest that he take two since the left rear will probably follow shortly. If he buys a headlight bulb to replace one which has already burned out, sell him this one and also a complete set of spares so that next time the inevitable happens, he will be prepared, and will suffer neither inconvenience nor the danger of arrest. It is surprisingly easy to increase sales by following out this idea inasmuch as the customer's mind runs in a rut. If he is buying tires, it is in a tire rut and he is in a most favorable mood to take two instead of one.



A Chart To Go With Sell In Sets

CLOTHING Suggests

Caps
Goggles
Gloves
Dusters
Robes

Shock absorbers
Tonneau shield
Pedal grips
Steering grips

Spotlight
Hassock
Back cushions

COMFORT Suggests

Wire wheels
Demountable rims
Bumper
New hood
New body
Shock absorbers
Radiator thermometer
Accelerator pedal
Starting—lighting
Anti-rattlers

Speedometer
License holder
Dashboard
Cowboard
Tire carrier
Extra tools
Light controller
Ignition system
Carburetor
Steering controller

CLEANING Suggests

Soap
Alcohol
Kerosene
Body polish
Metal polish
Glass polish
Leather compound
Top compound
Tire paint

Falls
Sponges
Hose
Chamols
Brushes
Broom
Air hose

STARTING LIGHTING Suggests

Ford systems
Storage batteries
Ammeters
Brushes
Lamp bulbs
Lamp bulb cases
Fuses
Hydrometer

Radiator thermometer
Water pump grease
Collapsible bucket
Hose clamps
Hose
Fan belt

COOLING Suggests

Radiator thermometer
Water pump grease
Collapsible bucket
Hose clamps
Hose
Fan belt

CEMENTS Suggests

Tire
Gasket
Celluloid

Cast iron
Shellac

TIRES Suggests

Tires
Tape
Cement
Repair compounds
Patches
Liners
Extra tread
Jack
Power pump

PAINTS Suggests

Aluminum
Bronze
Rim
Exhaust pipe
Muffler

Top dye
Leather dressing
Enamel
Rust preventing

SAFETY Suggests

Windshield cleaner
Fire extinguisher
Safety crank
Lock
Bumper

Medical case
Rear view mirror
Shock absorbers
Insurance

ENGINE REPAIRS Suggests

Piston rings
Spark plugs
Gaskets
Shellac
Carbon scrapers
Carbon remover
Valve compound
Valve tools
Hose clamps
Hose

TOURING Suggests

Tents
Car beds
Tent beds
Touring tents
Truck racks
Lunch kits
Folding buckets

Shovels
Water bottle
Chains
Tow rope
Block and tackle
Blue Book

APPEARANCE Suggests

Metal polish
Flags
Flag holders
Bouquet holders
Card cases
Toilet cases

Pennants
Emblems
Radiator thermometers
Bumpers
Spotlight
Wire wheels

LUBRICATION Suggests

Oil
Grease
Grease cups
Grease guns
Oil guns

Spring oilers
Spring spreaders
Graphite
Kerosene
Soapstone

PRIVATE GARAGES Suggests

Portable garage
Garage heater
Radiator heater
Sponges
Chamols
Vise
Bench
Tools
Gasoline storage
Air compressor

Locker
Vulcanizer
Pail
Towels
Soap
Hose
Waste
Oil
Grease
Kerosene

TOOLS Suggests

Tool box
Wrenches
Jack
Pliers

Tire tools
Hydrometer
Tire patches

IGNITION Suggests

Spark plugs
Plug cases
Plug cleaners
Plug terminals

Wiring
Batteries
Magneto covers
Insulating tape

CHASSIS Suggests

Knuckle boots
Bumpers
Shock absorbers
Spring oilers

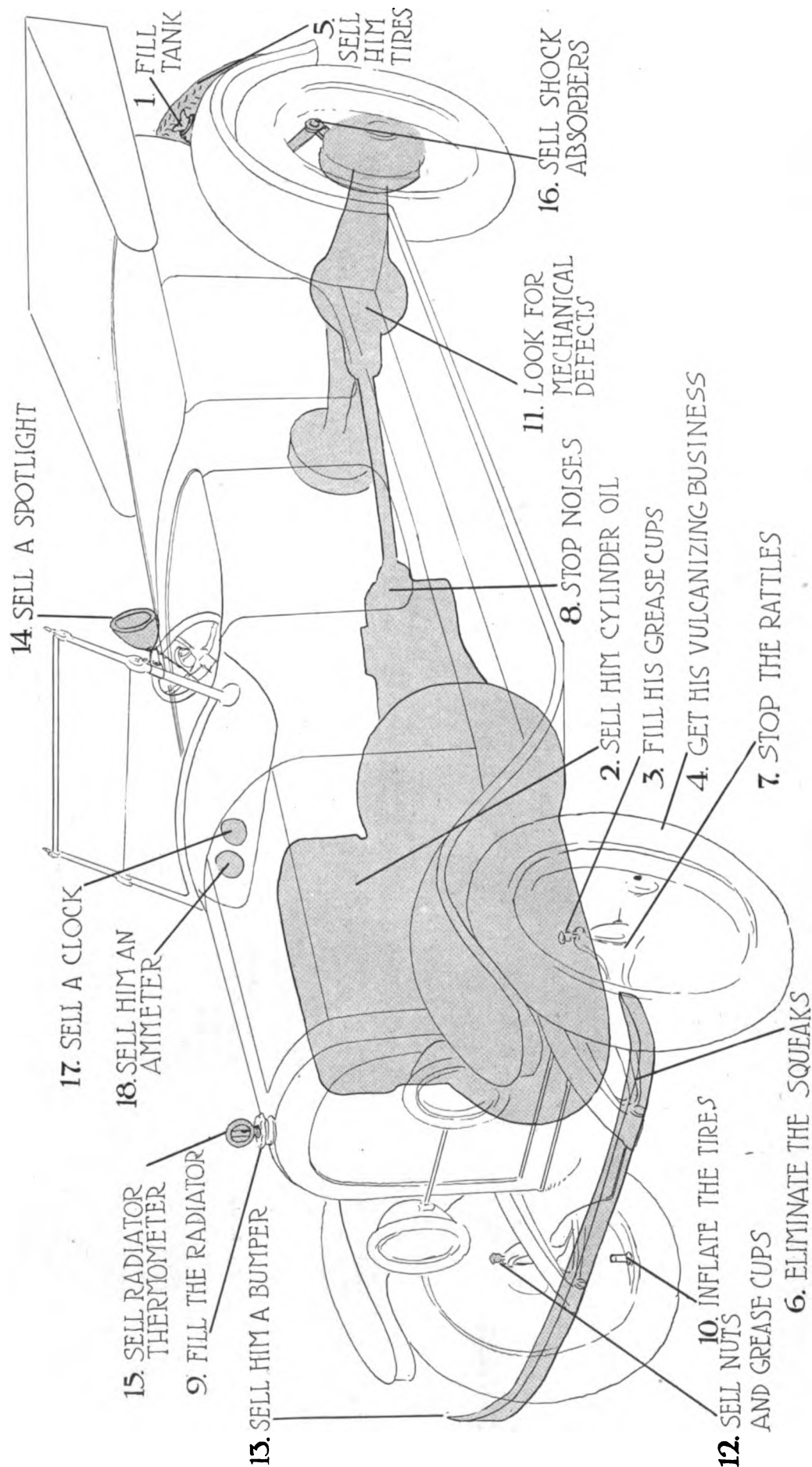
Grease cups
Nuts
Bolts

SUPPLIES Suggests

Gasoline
Oil
Grease

Tires
Tubes
Soapstone

A Chart To Go With Merchandising Accessories



WHEN the motorist drives up to your garage for gas or oil, or air for his tires, give his car the quick once-over and see if you can't sell him some accessories. Here are the places you should look: First fill his tank, then ask if he wants oil, then fill his grease cups, and so on. After you have done one thing, turn to the next.

Tack this chart up where you can always see it.

How To MERCHANDISE ACCESSORIES

Give the Motorist's Car the Quick Once-Over

MOST sales of accessories are lost for the want of a word. Every car owner needs something, and a quick glance over the car—thorough and systematic—will reveal what it is.

WHEN a motorist drives up in front of *your* garage don't let him get away until you are sure his needs are *fully supplied*. Go over his car point by point and find out what his requirements are, and make several sales instead of one. Be a salesman and not just an order taker.

1—FILL HIS TANK

Look at his gasoline tank gage and find out how many gallons he needs. Don't ask him how many he wants but suggest that you fill it up. If you ask him *how many*, like as not he will say 5 when it may take 12 to fill it.

If there is no gage, ask him if his tank does not need filling, but do not ask him *how many*.

2—SELL HIM CYLINDER OIL

Ask him if the engine needs oil, or if you can do it gracefully, look at the gage yourself, and report to him.

Remind him that the oil in the crankcase should be changed every 1,000 or 1,500 miles, and you may be able to sell him *a gallon or more* instead of a quart.

3—FILL HIS GREASE CUPS

Test the grease cups to see if they need filling. If they do, tell him how much it will cost and how long it will take.

4—GET VULCANIZING BUSINESS

Examine his spare tires and if one is punctured or blown out, suggest that he have it fixed. State how much it will cost and how long it will take.

If there are deep cuts in the tires, tell him that they should be repaired in order to forestall a blowout.

5—SELL HIM TIRES

If he is carrying a blown out spare or if any of the tires is badly worn, sug-

gest the advisability of buying a new one. Offer him current prices for the rubber in the old one. This will help clinch the sale.

If possible, when the car approaches, watch its operation closely as a means of determining the plan of your sales attack.

6—ELIMINATE SQUEAKS

Be a squeak expert. Few cars are free from squeaks. Motorists are willing to pay to have them eliminated. Watch for them and *cure* them.

7—STOP THE RATTLES

Almost any car which has been driven 1,000 miles or more, rattles to some extent. A rattle means a job for the shop, and every car rattle should mean a prospective customer. Some are easy to cure; others are very difficult—to cure them all means that you can fill your shop with work.

8—STOP NOISES

A noisy gearbox or rear end may denote lack of grease or adjustment which means work for the shop or a sale of grease or both. Note whether there is play in the steering gear; whether the brakes drag; whether they are in adjustment; whether they need relining.

9—FILL THE RADIATOR

If the radiator requires water, put it in. This is far-sighted business building and *do not spoil it by accepting a tip*.

While doing this you might find out how the cooling system is working, and thus unearth work for the shop.

10—INFLATE THE TIRES

Examine the tires and inflate any that need it, using a tire gage to test the pressure. This is also business building and no tip should be accepted. *This*

is an excellent opportunity to sell a tire gage, a hand or engine-driven pump, a jack, and, in fact, any tire accessories. Note whether the wheels are in line.

11—LOOK FOR MECHANICAL DEFECTS

Watch the operation of the engine for defective spark plugs, valves needing grinding or adjusting, carbonized cylinders, and other engine ailments. Observe whether the starting apparatus is in good condition, when the engine is cranked preliminary to leaving. And when he drives away note whether the carbureter seems to be in good adjustment.

12—SELL NUTS AND GREASECUPS

Run your eye over the car for missing nuts or greasecups, or other parts and sell him what he needs.

13—SELL HIM A BUMPER

He needs a bumper front and rear to protect him against the small mishaps not covered by insurance. Show him some dented mudguards and marred body panels or broken lamps as incontrovertible evidence of the desirability of fitting this equipment.

14—SELL HIM A SPOTLIGHT

If he is a city driver remind him of the convenience this light will be in reading street names, and house numbers. If he is a country driver, tell him that it is almost impossible to read road signs at night without such a light. In either case it is a convenience in making roadside repairs at night.

15—SELL HIM A RADIATOR THERMOMETER

Warm weather means that many cooling systems will operate near or at the boiling point. A thermometer is neces-

sary to warn the motorist in time to prevent serious damage or at least to avoid serious inconvenience.

16—SELL HIM SHOCK ABSORBERS

Few motorists would tolerate a car with solid tires, yet a good set of shock absorbers is as great an improvement in the riding qualities of a car as pneumatic tires over solids. Its cost is quickly compensated for by increased tire mileage.

17—SELL HIM A CLOCK

A clock is indispensable to the man who desires to be on time—always, whether it is merely arriving at a given point on schedule or keeping an appointment.

18—SELL HIM AN AMMETER

Shows whether the battery is being charged or discharged. It is of advantage in showing what is happening in the electric system. To know at all times whether the battery is being charged or not is usually to be able to tell at a glance where the trouble is when it does come.

19—HIS NEEDS

In course of conversation find out if he has everything that he needs. Has he used up, or lost or broken any articles during the day which should be replaced at once? He may have lost a wrench, making a roadside repair; he may have broken an important tool; he may have used up some of his supplies, such as soapstone, graphite, cup grease, patches,

tire valves, dust caps, fuses, lamp bulbs, soap, spark plugs, etc.

20—EVERYTHING HE REQUIRES

There are many other things which a motorist may need, but how many of these should be brought to his attention depends on circumstances. A good method is to print a durable card, which will fit comfortably into his pocket, on which is given a list of all the things he may require. This will be appreciated by the motorist in that it will aid his memory. Before making any purchases he can glance over the card to make sure that he has everything he wants. The card will also suggest to him the advisability of *purchasing many things which previously it had never occurred to him were necessary.*

The *Why* of Summer Accessories

*It's Not Enough to Ask a Man if He
Wants Something—You Must Sell It to Him*

IT is not enough to suggest to a man that he buy spark plugs, for example, but he should be told why. The mere mention of the article may be sufficient to effect the sale, but this will only hold true if he has already made up his mind to buy spark plugs.

If he is still undecided, it will be necessary to recount the reasons why he should buy. He may know most of them and some time in the past may have appreciated their full value, but at the present moment it is necessary to repeat them in order to bring them back to his mind with sufficient vividness so that he will be induced to buy.

Although a spark plug is usually good for many thousands of miles, there is always the possibility it may be spoiled by striking it with a tool. One defective spark plug spoils the performance of the engine and reduces the power. Also the irregular running is a serious strain on the engine and driving mechanism.

All this can be avoided by carrying extra spark plugs so that as soon as one gives way it may be replaced by a new one. Spare spark plugs do not deteriorate with age, consequently the only objection to their purchase is the

small cash outlay, and few motorists would balk at this.

Or take the question of purchasing a new shoe. Simply to ask the motorist whether he needs a new tire or not is a half-hearted attempt at making a sale, which gives small guarantee of success. On the other hand, examination may show that the four tires on the wheels are pretty well worn, and that the spare is also. Therefore the plan of attack is to show the motorist that with his present deficient tire equipment there is every chance that he will have an unpleasant ride home on a rim—possibly a week-end spoiled. Insurance against this unpleasant experience is merely the purchase of a new tire which sooner or later must be bought anyhow. Therefore, why not now?

In making sales of accessories it is simply a question of using the right arguments in the right place, and for the guidance of those who have not given the subject of accessory merchandising sufficient thought the main arguments which may be used in selling most accessories and supplies are briefly outlined below. These articles are grouped in order to emphasize the desirability of selling in sets as described on another page.

Brief Selling Arguments for Summer Accessories

Cooling System

Hood and radiator—Improve the appearance of the car, give it a distinctive look. The same arguments apply to demountable rims with natural wood wheels, to wire wheels, etc.

Collapsible bucket—A life saver when the water boils away in sparsely settled, hilly country.

Fan belt—A belt will not last forever and it is better to replace it before it gives way entirely and be on the safe side. Running without a fan belt is dangerous.

Touring Equipment

Touring hampers, baskets and lunch boxes—Every open air loving motorist likes to picnic and he will appreciate the convenience offered by a lunch box. It is miles ahead of the ordinary way of packing the food in shoe boxes and bags, and so forth.

Touring tent—Many motorists will be glad to have you explain the advantages of carrying a tent and sleeping in the open.

Beds—Car beds or berths enable the rough and ready tourist to camp by the wayside with minimum trouble. The cheap—

Trunk racks—Should be sold to every motorist who contemplates taking a trip of any length.

Cements

Gasket cement—To be used in applying gaskets.

Celluloid cement—For repairing curtain lights. Saves the cost of a complete new sheet of celluloid.

Cast iron cement—For repairing cracks and filling small holes or defects in cast iron, often rendering brazing unnecessary.

For the Engine

Hose clamps—It is desirable to have an extra set handy in

case the ones on the car are damaged or broken in removing and replacing the hose.

Piston rings—Often the solution of over lubrication, heavy carbon deposits, lack of power, waste of fuel, or uneven running motors.

Valve grinding compound—Necessary for the motorist who desires to grind his own valves.

Carbon scrapers—Enables the motorist to remove carbon in short time and at practically no cost. The tools may be successfully used on most motors.

Fuel System

Accelerator—Enables the operator to keep both hands on the

wheel, thus preparing him for any emergency. Furthermore, it is easier to operate the throttle with the foot than with the hand.

Gasoline carbureter—Not every car is equipped with the most desirable carbureter. The motorist who desires more power or greater economy is a very live prospect for a better carbureter.

Kerosene carbureter—For the motorist who desires to reduce his fuel bill by 60 per cent or more. In sections where gasoline sells for 32 cents, kerosene brings 8. The saving soon pays for the carbureter.

Gasoline strainer—Sooner or later every car will have trouble with dirt or water in the carbureter, unless there is some sort of a strainer or separator in the line. This is reason enough why every motorist should have one.

Vacuum system—Every motorist with a gravity or pressure feed, particularly the latter, is a prospect for a vacuum system. The next time he comes in for repairs to his feed sell him a vacuum system.

Safety Devices

Glass windshield compound—For keeping the glass clear in rainy or stormy weather. A highly desirable safety device.

Glare dimmers—Colored glass or celluloid attached to windshield. A cheap and simply installed device for neutralizing the effect of glaring headlights. The motorist without some protection against glaring headlights on approaching cars courts disaster, especially on narrow country roads. Headlight dimmers or shades are required by many States, but in any case some sort of a dimming device should be used.

Medical emergency cases—Just as necessary as life insurance. No motorist should assume that he is not going to have an accident and in case of injury the kit is worth its weight in gold.

Bumpers—Should be on front and rear of every car. Protects car against small injuries not covered by insurance. Will save any motorist time and money.

Locks—Every car should be insured against theft, but whether it is or not it should have an automobile lock to prevent the theft of the car. An automobile lock is usually simple to operate and easy to install. There are no disadvantages.

Fire extinguishers—A certain fire preventative. Some of the fire extinguishers enable lower insurance rates to be obtained. Fire extinguisher insurance may also be purchased, so that the owner who hesitates because he is afraid it will be stolen is protected.

Windshield cleaners—Essential for safe driving in rainy or stormy weather, particularly at night. Not a question of money, but of safety. The cost is low, however.

Rear view mirrors—Desirable for convenience and safety. Enables the motorist to spot the motorcycle cop.

Safety starting crank—Prevents injury due to back kick.

Rear traffic signal—Particularly for cars in which the driver's compartment is enclosed. A device which increases both safety and convenience.

Comforts and Beautifiers

Shock absorbers—Not only improve riding qualities, but actually decrease wear and tear on tires, and, in fact, all the car mechanism. Should easily pay for themselves in money paid this way.

Bouquet holders—A bouquet

is the final touch which stamps the closed car as complete in its luxury of appointment. Every closed car should have a bouquet holder.

Pennants and emblems—For decorating the car. They appeal to many motorists and to show them is to sell them.

Automobile hassocks—This is a comfortable addition to any car, but is particularly desirable where there is a child, as it offers support for its feet. Every motorist with a young daughter or son is an excellent prospect.

Flags—Every patriotic motorist should find room for at least two flags on his car and you should sell him flag holders at the same time.

Coat rail bag—Attached to the coat rail. May be used for carrying small articles.

Tonneau windshield—Keeps dust and wind away from tonneau passengers. Desirable for every car, but particularly for high speed work or driving on dusty roads. Appreciated by ladies.

Door anti-rattlers—Removes door rattle, making the care a more pleasant pleasure vehicle.

Steering wheel covers—To give a surer grip to the ordinary smooth-rimmed steering wheel. Particularly good when the finish on the wheel has become worn and should be covered up.

WHEN a motorist asks for an accessory, this should suggest something else that you can sell him. But it's not enough to ask him if he wants it. You've got to tell him why he ought to have it. That's what these selling arguments are for. Use them!

Pedal grips—On some cars the pedals soon become slippery. A little observation will show which these cars are. Their owners are excellent prospects for the sale of pedal grips.

Compounds

Radiator cleaning compound—Better engine performance as a result of improved cooling is produced by the use of a cleaning compound.

Radiator repair cement—Ideal for small leaks which cannot readily be reached with the soldering iron.

Tar removing compound—Harmless solvent for tar and heavy oils which are thrown up from the road.

Body polishes—Should appeal to the owner of a new car because he is proud of the finish and wants to maintain it. Should appeal to the owner of an older car because he desires to rejuvenate the falling finish.

Useful Instruments

Exhaust horn—The exhaust horn is ideal equipment for the owner who desires something different. It has recently been adopted by owners of discriminating taste to go with cars of individual design. It is something which should appeal to the owner who has a special open or closed job.

Speedometer—A speedometer is as necessary to the car as a bookkeeping system to the business man. It shows the motorist where he is at. It is impossible to determine whether the car is operating at best efficiency, whether proper mileage from the tires is being secured, or whether speed laws are being observed, unless a speedometer is used.

Clocks—A clock is superior to a watch, because it is continually in sight. It is of immense

aid in keeping appointments and making towns on time. It must be used to be appreciated.

Watch holder—Simple bracket for carrying the watch on the steering wheel. It offers many of the advantages of the automobile clock and yet is much cheaper.

Electrically wound clocks—A boon to the motorist who is forgetful. The clock is wound automatically and consequently the troubles of running down, winding and resetting are avoided. Especially desirable for the motorist who uses his machine only occasionally.

Grade meter—For the motorist who has the hill-climbing bug and desires to know the steepness of the hills he conquers. Shows whether car is in trim or not.

Ignition Equipment

Spark plugs—Every motorist should have an extra set to provide for emergencies. The outlay is small, there is no depreciation and you have them when you want them. It is not necessary to drive home with one or more cylinders missing.

Spark plug cases—Convenient method of carrying spare spark plugs and at the same time protecting them from injury.

Spark plug brush—Cleans

spark plugs efficiently in minimum time.

Leather magneto cover—Prevents dust and moisture from entering the magneto. A very desirable article for magnetos not of the waterproof design.

Apparel

Caps—Just the thing to sell on a windy day when a motorist is having a hard time to keep his hat from blowing away.

Gloves—Gloves are a necessity even in warm weather, if the motorist is particular about keeping his hands clean. There are many light and cool styles which nevertheless will keep out dirt.

Goggles—Goggles are a necessity to the tourist or in sections where the roads are dusty. It is not sufficient to sell one pair. Five or seven pairs, or whatever the passenger capacity of the car is, should be sold at one time, with the suggestion that they be kept in the car. It is advisable to supply a suitable box for carrying them, so that they will not be injured.

Electric Equipment

Automatic headlight bracket—For motorists who desire to see around corners when driving at night. The headlights turn with the wheels.

Brushes—New generator brushes are often the cure for generator troubles, but installing and refitting the brushes is a repair shop job.

Ammeters—Shows when the battery is being charged or discharged, and consequently is of as much importance to the electric system as a tire gage to the tire.

Electric flashlights and lanterns—Unless the motorist has a trouble lamp run from the storage battery, he should have a flashlight so that he will not have to work in the dark when

making a roadside repair. The cost is small and the life of the battery almost indefinite under ordinary use.

Lamp bulb cases—The only safe way to carry extra lamp bulbs. Prevents breakage.

Electric starting and lighting system—Ford owners are good prospects. The advantages of electric starting and lighting are unquestionable. The lighting feature gives greater comfort and safety, and the starting feature increases comfort and convenience. Almost a necessity when ladies drive.

Storage batteries—Every car not equipped with an electric generator should have a storage battery for furnishing all light, including headlights. It will last a surprising length of time even when the headlights are used before recharging is necessary.

Dry batteries—Just the thing for a cigar lighter, dash lamp or trouble lamp on a car not equipped with an electric lighting system.

Electric horns—Many motor cars are equipped with inadequate horns or troublesome horns. The owners of these cars are good prospects for high-grade electric horns.

Tail light indicator—A device which shows when the tail light goes out. It should be particularly easy to sell where the local police become particular over enforcing the tail light law.

Electric cigar lighter—Enables the motorist to light his cigar in the windiest weather with less trouble than with ideal conditions using a match. The current consumption is inconsiderable.

Hydrometer—If the life of the storage battery is to be preserved and full efficiency and satisfaction obtained from it, it is necessary to have electrolyte of proper specific gravity. This can only be determined by using a hydrometer syringe. The syringe is an accurate measure of the condition of the battery. Every owner should have one. It is more necessary than a tire gage, because it is possible to get some idea as to inflation of the tires by observing them.

Fuses—Every motorist should have a set of fuses, so that when a fuse burns out he will have one to take its place and not be inconvenienced for lack of light.

Spotlight—Indispensable to the motorist who does night driving and must read sign boards, house numbers, etc. Also indispensable to the taxi driver, delivery car driver and truck driver in locating street signs and house numbers.

Tire Equipment

Tire repair kit—Enables the motorist to take good care of his tires and tubes with minimum effort. Everything necessary for repairing punctures and cuts in the casings are supplied, thus not only the expense of vulcanizing is saved, but the life of tires and tubes is prolonged.

Tire pressure gage—Notwithstanding all that has been said, the majority of motorists still run with tires under inflated and short tire life results. Guesswork has no place in inflating tires; a gage should be used. You should be able to sell a gage to every motorist whose tires are under-inflated.

Tire repair compound—For filling cuts in outer casings. It prevents small cuts from enlarging and eventually causing the destruction of the tire. A money saver easily applied.

Engine-driven tire pump—Almost a necessity for the car not equipped with demountable rims, but desirable for every car. Picture the discomfort of pumping up a car on a hot summer's day, balancing it against

advantages of engine-driven tire pump.

Tire and tube cases—Spare tires and tubes should be protected from heat, light, wind, weather and moisture by suitable cases. This applies particularly to tubes, which may be ruined by only a slight amount of chafing in the tool box or other car compartment.

Tire alarms—Saves tires because it shows the motorist when the tires are under or over inflated. Automatic in action and easy to install.

Puncture sealing compound—Seal punctures. Is excellent for making a porous tube airtight.

Tire tools—Every motorist should have a plentiful supply. Many make the mistake of using screwdrivers, cold chisels and other tools and invariably spoil them. It is cheaper in the end to use the right tool in the right place. Also it is more convenient.

Insulating and tire tape—Indispensable for repairing broken insulation and for taping exposed connections.

Tire pump connection—The connections on most tire pumps are not as desirable as they should be, and in almost every case a motorist may be induced to buy a better one—one which is easier to connect to the tire and in which leakage is eliminated.

Inner tire shoe—A reinforce-

ment which is desirable for old shoes, enabling much more mileage to be obtained.

Hand tire pump—Very few motorists are satisfied with their present pump and would be glad to obtain one which really would do the work satisfactorily. These men are also good prospects for engine-driven tire pumps.

Paints and Dressings

Leather dressing—Improves the appearance of the upholstery and increases its life and wearing qualities.

Top lining dye—For refinishing the interior surface of the top, which in ordinary use soon becomes stained and objectionable in appearance. The dye is easily applied and lasting.

Exhaust pipe and muffler paints—Made to withstand the heat, at the same time prevents rust of the parts.

Rust preventing and removing compound—An indispensable aid in preserving the original freshness of the car. Particularly desirable for demountable rims.

Aluminum and bronze paint—Just the thing for painting the engine and other parts. It improves the appearance and is an investment for the owner desiring to sell his car, enabling him to get a higher price.

Rim paints—Prevents rusting of the rim and consequently

makes it easier to apply or remove tires.

Enamel—For blackening lamps, radiators and other brass work on the car. Desirable for parts which have become worn or tarnished and also removes the necessity of polishing.

Lubrication

Grease cups—The grease cups on most cars are too small and many motorists would welcome the suggestion to install larger ones. Every motorist should have extra cups so that in case of loss or breakage they may be replaced immediately.

Grease gun—A grease gun is absolutely necessary to fill universal joints and similar parts with grease and its cost is a small price to pay for the convenience offered.

Oil gun—The oil gun may be used for lubricating various parts about the car and is also indispensable as a syringe for handling kerosene or gasoline when used for cleaning.

Oil—A good oil is cheaper in the long run because it lasts longer and reduces wear of parts. The cylinders carbonize less readily.

Grease—Warm weather demands heavier grease than cold weather and this fact should be brought to the attention of the motorist. Still heavier grease is sometimes required for pump bearings and other grease cups

in warm places. This should be explained to the motorist.

Spring leaf oiling devices—Prevent squeaks and increase the flexibility of springs by reducing friction between the leaves. Also increases the life by preventing rust.

Miscellaneous

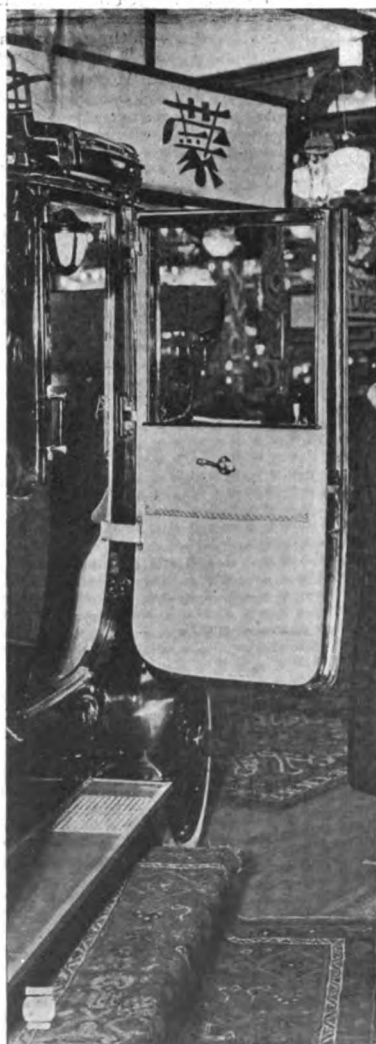
Tool bags or rolls—A place for every tool and every tool in its place. Saves time and prevents loss or misplacing of tools.

Steering knuckle boots—Only adequate protection for steering knuckle joints. Keeps dust out, thus preventing wear, and keeps grease in, thus insuring good lubrication. Easy to attach.

Spring repair clamps—Serious delays when a spring is broken may be avoided if there is a spring repair clamp in the tool kit, as the spring may be patched up in a few minutes.

Bolts—Every motorist should have a box of assorted bolts and machine screws for emergency repairs. The cost is small and there are times when the possession of just one bolt will many times repay for the small outlay.

Metal tool boxes—It is better to carry tools in a box made for the purpose rather than under a seat cushion, where they are hard to get at. Accessible tools mean that the "stitches in time" will not be neglected.



Hudson Super - Six town car landau, displayed by friend of Reilly's. For further information see lettering in upper left corner of the photograph, which tells all about it.

Novel Decorations At Detroit Show

"Billy" Sunday's Old Tabernacle Becomes Oriental Paradise



No mistake, this was a Far East show. Note Jap attendant, screen, idol, rug, dreamy flowers, vase and Grand Rapids table (sold everywhere).

Equipping the Dealer's Office

BETTER business means system, and system in turn requires the use of certain office equipment. On these pages are a few devices which can be put to profitable use in many garages and dealers' places of business. Motor World will be glad to suggest equipment for specific purposes and to assist in the lay-out of an office.—Editor.

Universal Steel Cabinets

The advantage of these cabinets is their elasticity. A dealer may buy one file drawer and add to it just as he needs. Additional units may be firmly locked to the original unit so that the whole is a solid structure, and may be attached to either side, or the top or bottom, as desired. The units are locked together by grooved rods which slide into place from the front without tools. There are three types of rods: The two-way rod, which is used to connect the outside edges of cabinets assembled on top of each other or side by side; the four-way rod, which is employed when three or four boxes are to be joined with three or four edges meeting; the corner rod, which is used on all exposed outside edges to give it a finished appearance. The boxes are made in a variety of sizes, and these may be readily interlocked in any combination. As shown herewith, there might be a row of seven drawers along the top for filing prospect cards, directly below it a row of six drawers for larger cards such as might be used in some branch of the service work. Underneath this there might be eight drawers for filing correspondence, and the bottom row might be seven tall cabinets for filing loose-leaf records of customers' accounts, etc. It is readily seen that all branches of the business may be provided for and

more units may be added at top, sides or bottom at will. The prices range from \$3.50 for the 3 x 5 card unit up. They are made entirely of steel with welded joints, and are finished in olive green, oak or mahogany.—Universal Steel Cabinet Co., 2026 Pacific Street, Brooklyn, N. Y.

Todd Check Protector

Thousands of checks are raised every year and a large proportion of them are those of dealers and garagemen. The Todd protectograph makes this impossible by stamping the amount of the check in two colors in such a way that alteration is impossible without instant detection.—Todd Protectograph Co., Rochester, N. Y.

Imperial Desk Trays

Desk trays provide a convenient place for the papers that ordinarily are scattered all over the top of a desk. Imperial trays are made in a wide variety of styles from a single tray in quartered oak at \$1.20 to 2-tier trays in oak at \$2.70. The concern also makes desk filing cases to slip papers into, one having five flat compartments for papers and two larger pigeon holes for miscellaneous articles. The price is \$3 in oak.—Imperial Methods Co., 204 West Monroe Street, Chicago.

Alsteel Paper Baler

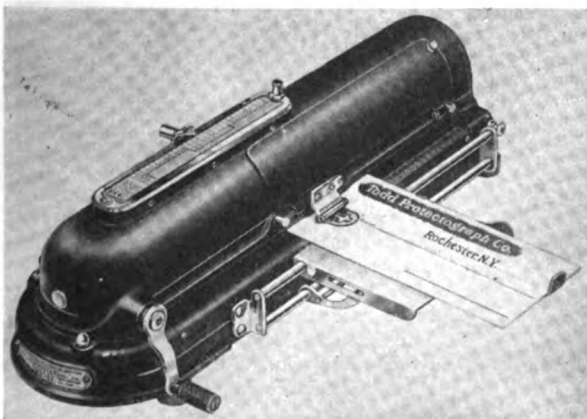
The Alsteel Paper Baler is for baling waste paper, and turns out 2 sizes of bales, weighing 75 and 150 lbs., according to the size of the baler. The smaller size of baler occupies a floor space 20 x 22 and weighs 150 lbs., and the larger size occupies a floor space 26 x 29 and weighs 200 lbs. Waste paper is merely thrown into the receptacle and is then tightly compressed by powerful levers. After the paper is compressed it is wired into a bale from the front of the machine. The smaller size costs \$25 and the larger size \$35.—Allsteel Mfg. Co., Battle Creek, Mich.

Lithographed Letterheads

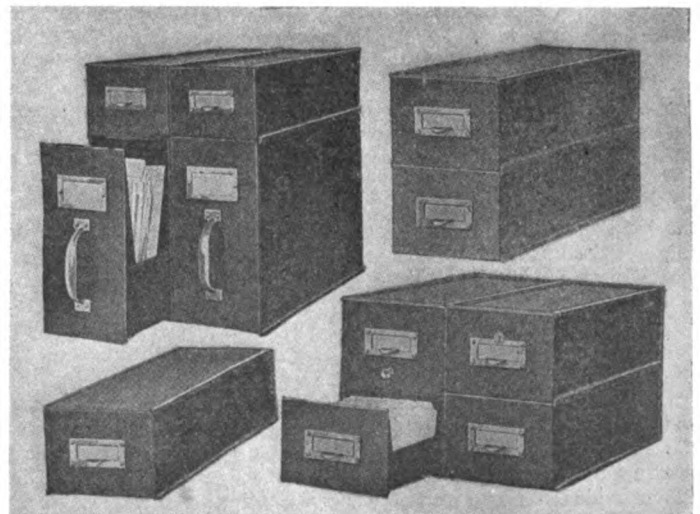
Lithographed letterheads, billheads, statements, etc., present a good appearance and are inexpensive. Better effects can be obtained than with ordinary printers' type because the lettering is not necessarily confined to ordinary type faces. Various distinctive type faces and arrangements can be made to suit particular requirements. One thousand letterheads, billheads and statements together cost about \$9.90.—Kay-Dee Lithographing Co., Milwaukee.

Cards on Rails

Cards cannot fall out of the Kohlhaas card index, nor can they be taken out



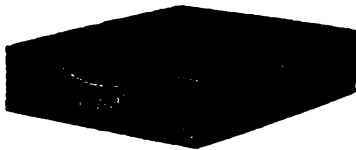
Above—The Todd check protector prints the amount in two colors and makes check raising impossible. Right—Universal steel cabinets are made in a variety of styles and sizes and may be locked together to form units



without deliberate intent. The device is made in a variety of standard sizes and accommodates standard sizes of index cards. They are made for a number of specific purposes, such as for prospect cards, for accounting, for names and addresses, for demonstration appointments, service, etc. The index is on a new principle of handling cards on rails in place of merely having them in boxes. When closed the device is dustproof and automatically locked. Individual cards are easily removed.—The Kohlhaas Co., 31 West Lake Street, Chicago.

For Binding Catalogs

The Bigelow catalog binder provides a place for catalogs of various sizes which can be all bound together. The binder has a solid wooden back and stiff sides and is covered with maroon art buckram.

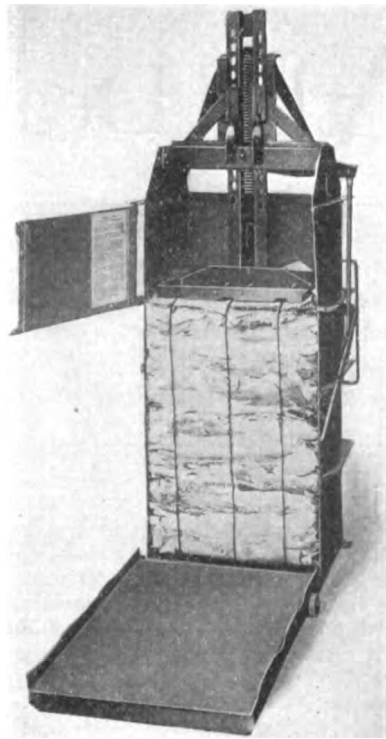


Above—Imperial desk trays provide a place for loose papers. Below—The Daisy wire waste basket is entirely fireproof.

Whether completely filled or containing only one catalog, it stands straight on the shelf. Catalogs are filed in it by means of metal eyelet tie-clips. Complete catalogs may be filed or single sheets alone. Binders are made in a variety of sizes from 9 in. on the binding side to 6 in. wide and 1 in. thick, at \$1 each; to 16½ in. on the binding side, 11¼ in. wide and 2½ in. deep, at \$1.85. No. 2203 is suitable for the general run of catalog sizes, measures 12¼ in. on the binding side, 9¼ in. wide and 2¼ in. thick. It sells for \$1.40.—Bigelow Binder Co., Riverside, Holyoke, Mass.

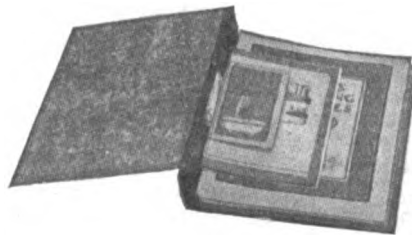
Compact Typewriter Catalog

For the small office, the Byron typewriter cabinet should be practically all the furniture required for ordinary recording and correspondence. The cabinet provides a place for the typewriter and drawers or receptacles for all sup-



The Alsteel paper baler occupies a small space and bales waste paper, thus making it readily salable.

plies ordinarily needed in office work. It is furnished in light golden, dark golden, fumed or early English quartered oak, and in birch mahogany and also in genuine mahogany. Closed, the cabinet occupies a space 20 x 42 in. Three styles,



The Bigelow catalog binder binds catalogs of all sizes and holds them firmly.

varying in size and capacity, cost \$40 in oak, \$42 in birch mahogany and \$52 in mahogany; \$30 in oak, \$31.50 in birch mahogany, \$39 mahogany and \$18 in oak, \$19 in birch mahogany and \$23 in mahogany.—Byron Typewriter Cabinet Co., Mt. Clemons, Mich.

Berger Steel Equipment

Berger steel equipment is made in great variety and for practically every purpose about the office and garage. Steel lockers are made in a number of sizes and styles and are suitable for either office or garage. They are sanitary, durable, fire resisting, flexible in arrangement and economical in cost. Berger steel filing cabinets have a double wall construction and are made of heavy-gauge steel, and hence cannot warp, split or rot. Drawers have large filing capacity and slide on ball-bearing roller



The Ajax eyelet fastener automatically punches a hole and rivets papers together in one operation.

suspensions. All this equipment is attractively finished in a hand-rubbed neutral olive green with brass fittings.—Berger Mfg. Co., Canton, O.

Fireproof Wire Waste Basket

Daisy wire waste baskets are made entirely of metal with a solid pan bottom in such a position that there is an air space between the bottom and the floor. They are therefore fireproof. They are made of perpendicular wires coiled around spring steel wire hoops at top and bottom. There are two finishes, bright copper colored wire or lacquered, which preserves the bright finish. A number of sizes are made, varying from 11 in. high at \$8.40 per dozen to 15 in. high at \$24 per dozen.—Massillon Wire Basket Co., Massillon, O.

For Fastening Papers

The Ajax eyelet fastener automatically punches the hole in papers to be bound together, inserts the eyelet and clinches it in one operation. The eyelets, furnished in three different sizes at



The Byron typewriter cabinet holds the typewriter and all the necessary supplies. It closes completely when not in use.

30, 40 and 50 cents per 500, are placed in a receptacle and feed automatically. The device sells for \$5.—Tower Bros. Stationery Co., 23 West Twenty-third Street, New York.

Weis Office Specialties

Weis filing and office equipment is made in wide variety. Three devices are illustrated. One is a legal blank or

electro cabinet having six flat drawers. The case measures 10 x 10 $\frac{1}{4}$ x 15 $\frac{1}{4}$ and sells for \$5 in plain oak. Another is a stationery storage cabinet for the top of a desk. It has a small drawer at the bottom for papers, and compartments for stationery. There is a sliding cover. The price in oak is \$3.50. The third is a swinging typewriter stand for attachment at the end of a desk. It sells for \$3 or \$3.50, according to finish.—Weis Mfg. Co., Monroe, Mich.

Engraving Without Plates

Engraved stationery, though considered to be the best, is expensive, yet precisely the same results can be obtained at a fraction of the cost and without the need for engraved plates. Letterheads, billheads, calling cards, announcements, in fact, practically any printed matter, can be made to so closely resemble expensive engraved jobs that it is almost impossible to tell the difference. Examples of the work done by this process are beautiful. Prices run about \$4.50 for 500 business cards in one color; \$4.50 for 500 letterheads or envelopes. More than one color can be used. An additional charge of \$1.50 is made for each extra color per thousand or fraction.—Non-Plate Engraving Co., 42d St. and Broadway, New York.

Dalton Adding Machine

The Dalton adding machine is one of the simplest and has but 10 keys. The machine will list, add and calculate, including multiplication, division, the figuring of interest, etc. The 9-10 regular model lists at \$250.—Dalton Adding Machine Co., Poplar Bluff, Mo.

Embossing Without Dies

Letterheads, billheads, cards and announcements can be beautifully embossed without dies by this process. The concern makes a specialty of designing letterheads and executing them. The letterhead or card, etc., is printed in the usual manner and then a powder is sifted on the ink while still wet. A heat process then fuses the powder and makes the lettering stand out exactly like embossing. Any number of words to a heading, not exceeding 7 lines, can be embossed at a regular fixed price amounting to about \$1.70 per 1000 over the usual charge for ordinary printing. About three weeks are required to fill orders.—The Commercial Embossing-Printing Co., Wilkes-Barre, Pa.

Macey Office Equipment

Macey office equipment is made for every office requirement. One piece is a fireproof steel safe for records, measuring 63 x 32 x 26, and designed for use in an office where valuable records must be preserved. Another is metal S-t-a-k-u-p file, which can be built in great variety of units on a standard base. Such a unit might consist of a number of different size drawers for various size index cards, etc., high drawers for filing documents and flat drawers for papers, drawings, cuts, etc. This

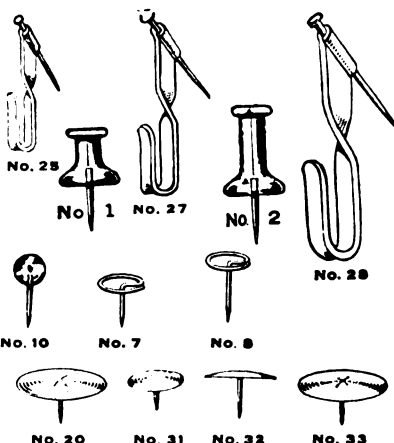
Dr. W. Franklin Nimocks
Poplarville, Mississippi

Frank P. Wopper
SUPERINTENDENT OF SCHOOLS
LUZERNE COUNTY
OFFICE, COURT HOUSE
WILKES-BARRE, PA.

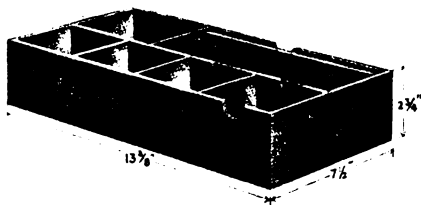
WILLIAM B. PAXSON
CIVIL AND MINING ENGINEER
SECOND NATIONAL BANK BUILDING
WILKES-BARRE, PA.

ENTERLINE & ENTERLINE
ATTORNEYS AND CONSELLORS-AT-LAW
POTTSVILLE, PA. ASHLAND, PA.

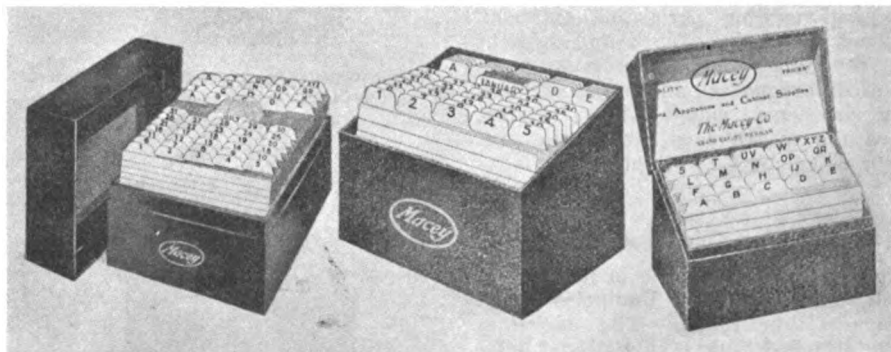
Lithographed letterheads are distinctive and inexpensive. These are produced by the Kay-Dee Lithographing Co.



Moore push pins are made in a number of different styles for hanging both light and heavy objects to salesroom walls.



The Polar side drawer desk tray has compartments for all necessary correspondence supplies.



The Macey Co. makes a specialty of office equipment and also produces index cards designed particularly for use in the garage and salesroom. Here are three styles

concern also makes a great variety of index cards, particularly for the garage and dealer trade, such as "Prospect record," "Stock record," "Tire record," "Equipment record," etc.—The Macey Co., Grand Rapids, Mich.

A. B. Dick Mimeographs

Form letters are the backbone of the success of many dealers. It is essential that they be turned out rapidly, accurately and at low cost. The Dick Mimeograph is designed to do this work. A number of different styles and sizes are made, the smallest and simplest being No. 75. This device, complete with all supplies necessary for turning out facsimile typewritten letters, sells for \$31.25. Other styles, for more elaborate work, vary in price up to nearly \$200.—A. B. Dick Co., Chicago.

Desk Drawer Tray

The Polar side drawer desk tray fits into the drawer of a desk and has compartments for holding such supplies as pens and pencils, rubber bands, ink-well, etc. It provides a convenient place for them where they are instantly available. No. 6, which measures 13 $\frac{1}{2}$ x 7 $\frac{1}{2}$ x 2 $\frac{1}{4}$, sells for \$2.50.

To Hang Things Up

There are always things to hang up around the walls of the salesroom and garage, and Moore push pins are for this purpose. Several styles are made, some with convenient glass handles for tacking light things to walls and some really heavy in construction for hanging heavy pictures. All styles are inexpensive.—Moore Push-Pin Co., Philadelphia, Pa.

For Binding Catalogs

The Elbe spring binder provides a convenient means of binding catalogs of various sizes and also loose sheets, if necessary. The binder opens flat and holds its contents firmly. The binding is done in several styles, such as imitation leather, canvas, gray buckram, green cloth and cowhide. Prices vary from 65 cents for a binder in imitation leather measuring 5 $\frac{1}{2}$ x 8 $\frac{1}{2}$ to \$3 for a binder 11 x 17 bound in cowhide.—Elbe File & Binder Co., 97 Reade Street, New York.



The typewriter tidy tray provides a place for various stationery all in one drawer.

Follett Time Stamps

So many operations in a garage are done on a time basis that a time stamp is almost indispensable. Follett stamps are made in several styles, one popular model selling for \$55. In addition to stamping time, it can also be made to print the name of the garage and such words as "received," "delivered," etc.—Follett Time Recording Co., 29 Murray Street, New York.

Typewriter Tidy Tray

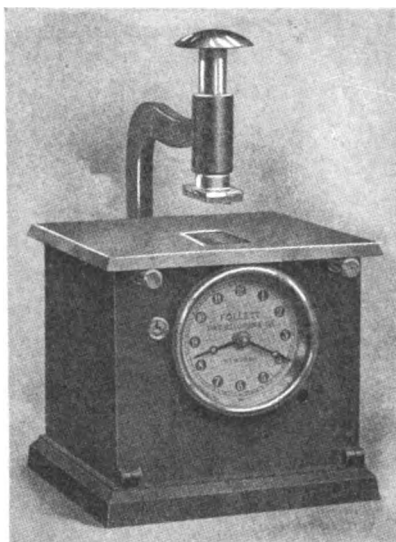
The typewriter tidy tray slips into a desk drawer and provides a place for from eight to twelve different kinds of stationery without obscuring any, so that each can be withdrawn instantly without disturbing the others. In other words, everything is in one drawer and in sight. The device is made of light metal and folds. With three leaves the price is \$2.50; 4 leaves, \$3; 5 leaves, \$3.25; 6 leaves, \$3.50.—Frederick Brady, Middletown, Del.

Security Envelopes

Security envelopes are made in a wide variety of shapes and sizes and are for any purpose for which an envelope generally is used, such as mailing, filing, etc. Leather expansion envelopes are made of a special red rope paper and are expandable to take one paper or a hundred. Various standard sizes are made. Some have tape for tying them up and others have plain flaps. Expanding mailing envelopes are made of a similar material and provide a safe means of mailing perishable material. Vertical file pockets, with and without flap, expanding files, and a great number of different sizes and styles of "tension" envelopes, closed with a string, or with a metal clasp, are made.—Security Envelope Co., Minneapolis.

Equipoise Telephone Arm

Generally the telephone is just out of reach, but with the Equipoise it is always within reach. The device is easily attached to desk or wall and holds the telephone always in an upright position. The arm is self-balancing in any position. Price \$5 in hard rubber finish.

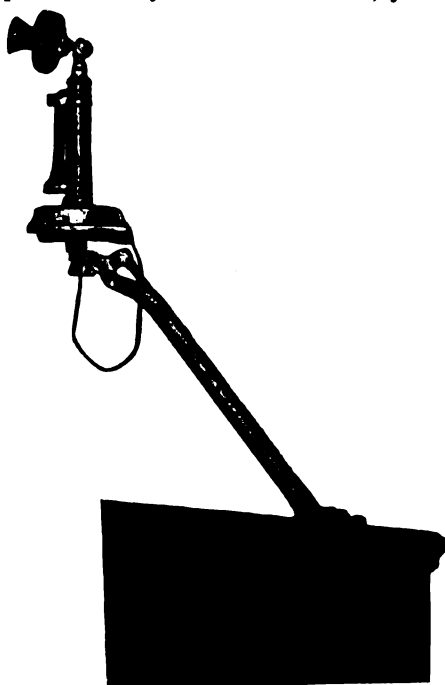


Follett time stamps are suitable for any garage where work is done on a time basis.

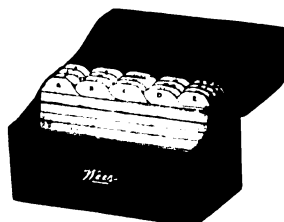
Nickel finish is 20 per cent higher.—Holtzer-Cabot Electric Co., Boston.

Multicolor Printing Press

The Multicolor printing press will turn out all sorts of printed matter for the salesroom and garage. It is a printing press in every sense of the word, yet is



The Equipoise telephone bracket balances in any position and the telephone is always within reach.



Two Weis office specialties, a small cabinet for papers or cuts, and a little card index for prospect cards

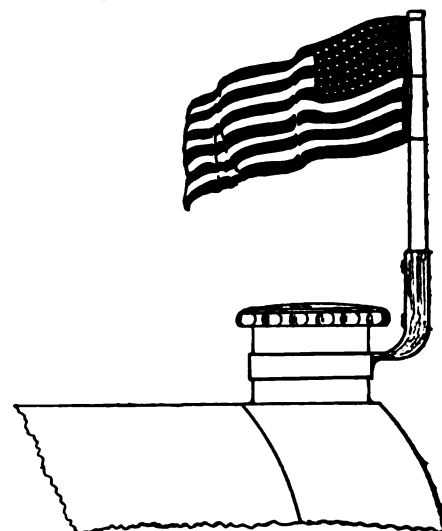
The Dalton adding machine will do all the computing in the average garage.



simple and is intended for use in an office. An expert operator is not needed. In form letter work the press will turn out letters in three colors at one operation, letterhead in one color, letter in another color through a ribbon and signature in another color. In job work it will print two colors at once and turn out from 3000 to 4000 impressions an hour.—Lisenby Mfg. Co., 298 Broadway, New York.

Shattuck Flag Holder

A unique flag and pennant holder is the Shattuck. It is secured to the filler tube of the radiator by a band locked in place by the fingers. The band is adjustable to all makes of cars and trucks. One of the features of the design is that the flag holder proper can be set and locked in any position, and two or more flags may be used if desired. The de-



The Shattuck adjustable radiator cap flag holder

vice takes flags with staffs up to and including 1/4-in. in diameter and does not interfere with the removal or replacement of the radiator cap. It can be attached in a few seconds, is light and strong and comes finished in black enamel. They are packed in cartons of 25 and retail at 25 cents each. Shattuck Mfg. Co., 98 Park Place, New York.



How an Office Girl Can Be a Profit- Maker

AN editorial by Charles L. Turner of Peoria, Ill. Some time ago one of Turner's letters to *MOTOR WORLD* was printed as an editorial because of the wonderful way in which it presented a wonderful idea. Turner has made a study of business. He has figures to back up all he says. He has made hundreds of dollars by following the advice of *MOTOR WORLD* and now he comes through with an idea that, if copied, can make hundreds of dollars for his fellow *MOTOR WORLD* readers.

Turner's Letter

SOME TIME ago I wrote you a letter in regard to co-operating with our employees and you thought well enough of it to turn it into an editorial. That was very good as far as it went, but if you want a real editorial, here it is:

The subject is "Why the Office Girl Should Not Be in the Expense Column."

In taking an account of the average garage and figuring up the cost of maintaining same, we notice that the office girl's salary is usually included in the expense column. The object of this letter is to show that the office girl can be made one of the main factors in the business.

Several years ago while struggling along trying to attend to the work in the daytime and take care of the books at night, we decided that it would pay us to get out a series of circular letters, calling attention to our repair work and to some accessories that we were handling. To do this we began to look around for a girl.

Common Sense Necessary

We decided that we wanted to get a good, sensible girl, one who was just as anxious to get ahead and to make herself good as we were anxious that she should. We finally remembered a girl whom we had known for some time, who had not only a good common school education, but had taken a course in a business college—and this was her first job.

The first year was just a little hard for her, because all of the names of parts and accessories and the prices and everything of that sort had to be learned. She also made some mistakes, but we believe that it behooves any employer to look

over a lot of these things because it is only a question of time until an employee will, if given a chance, overcome it.

We found that the circular letters were a paying proposition. Some of the readers of *Motor World* will remember some of our first ones which filled our shop with winter work. As we grew the girl became more and more valuable. She not only made a good many sales of accessories, but she gradually acquired a knowledge of the business, so that she could take very good care of the office during the boss's absence.

Adding to Business

At the present time we have taken over another building in which we have fitted up a really good accessory store—the best one in this part of the city. We have arranged this so that the office girl not only can take care of the office, but in a large manner superintend the business. For instance, her bookkeeping desk is so arranged in the new building that she has a very clear view of the gasoline filling station at the curb; also the entrance to the garage proper and can also see a part of the main garage through a side door. An electric bell has been put in near her telephone and a series of signals arranged for. We have extra telephones in convenient parts of the two buildings; these are arranged so that a signal from her will call any employee wanted to any of the telephones or to get gasoline or anything that is wanted. This is all done by signal work. Also signals can be arranged to call any certain man to the office or accessory room.

Her office is surrounded by windows so that she can see the front door as it opens and also has a complete view of

the accessory department and the cash register. When all of the accessory men are busy she is now so well posted in regard to the goods we sell that she can sell or hand out anything that is called for by the purchaser.

All bills for repairs or accessories are paid direct to her, thus saving a lot of time of the men. You can thus see that the office girl does not simply have to be an expense, but she can also become an expert saleslady if she is given the opportunity to do so. There are thousands of good, wholesome girls who would be glad of this opportunity and who would strive their very best to make good if given half a chance. They are lots quicker to adapt themselves to circumstances, and in our case our office girl is good at remembering names and addresses and also prices, which is a great help to the average employer who has a great many other things to occupy his attention.

In conclusion we wish to say that the selection of a girl makes a lot of difference. The girl with the bleached hair or the painted cheeks will not add a bit to the dignity of the garage business—and she is not wanted. But to the young garage that is having a hard struggle to get established and to increase its business, we would by all means recommend that it secure a good, sensible girl with good appearance and start by getting out good circular letters and also put in a line of accessories and give her a chance to make good.

Get This Point

The average girl will jump at the chance to do something else besides sit in the office and answer the telephone and look out of the window.

One more thing we want to mention is the matter of taking orders over the telephone. Our office girl in addition to taking care of the regular office work, keeping the books, looking after the time, taking care of the cash and selling accessories occasionally, also has made several good sales of tires and tubes over the telephone.

One in particular happened just a short time ago. One of the business firms of this city called up and wanted to know what discount we could make them on two tires and tubes. The young lady told them in a few words who were entitled to discounts and who were not. She, also, is tactful and gave them to understand why they were not entitled to a discount and thus made the sale without any help from anyone else.

There is no question in my mind but what a girl can become one of the most valued employees and thus get herself out of the expense column.

We trust that this letter may be of help to some garage that needs office help and yet does not feel that it can stand the expense. Of course, a girl of the kind we are describing is worth more money than the common, ordinary run of office girls—but one can afford to pay her more.—*Turner Garage, by Charles L. Turner.*

Swell Summer Profits

Selling Seasonable Accessories

Planco Folding Bucket	J & D Watch Clamp	Atlas Curtain Lights	Rie Nie Dressings
Defiance Camp Products	Aderente Deflector	Seng Horn Button	Motor Lunch Kits
Boko Water Bucket	Grip Tight Carrier	American Flag Labels	Basket Refrigerator
Auto Hat Hanger	Hansen Air Valves	Globe Auto Boxes	Hawkeye Refrigerator
Seng Flag Holder	Schilling Auto Camp	McMillan Auto Bed	Scott Folding Pail
Povasco Steering Wheel	Rie Nie Radiator Fluid	Rie Nie Enamel	Quik-Ezy Tire Tool
Touring Luggage Carrier	Rie Nie Rust Remover	Peoria Auto-Kot	Duplex Foldable Bucket

American Flag Labels

There are two styles of flag labels for use on letters and packages. One design is an American flag in colors and sells for 75 cents per thousand. Another design shows an American flag, waving, with the legend "America First" underneath. Price 75 cents per 100. The labels are gummed.—Ever-Ready Roll Label Co., 419 West Forty-second Street, New York.



Two attractive flag labels which may be used on letters or packages

owner of a Ford or other small car to completely refinish it. The standard outfit is all black, but any combination of colors will be substituted if desired. Price \$4.50.—Durkee-Atwood Co., Minneapolis.

Refrigerator Baskets

Refrigerator baskets of various sizes and types ranging in price from \$6 to \$12. There is an ice compartment and the remainder of the space is for food.—Scott-Omaha Tent & Awning Co., Omaha.

Watch Clamp

A simple watch clamp made of two pieces and may readily be attached to one of the spokes in the steering wheel. The watch may be removed by a slight pull. Price of watch and clamp, \$2.—Jay & Dee Specialty Co., 41 Park Row, New York.

Hawkeye Basket Refrigerator

A wicker hamper metal lined and insulated with an ice compartment at one end and the remainder of the space for food. The covers are wood and have a polished metal lining. Price \$5 up. The Hawkeye outing basket contains knives, forks, dishes, thermos bottle, etc. Price for two people \$15, four people \$20, five people \$25.—Burlington Basket Co., Burlington, Iowa.

Defiance Camp Products

The Defiance folding steel camp stool is comfortable and strong and has a khaki seat. It weighs 2 lb. and folds into a space 7½ x 10. It may be used as an auxiliary seat in the machine or for

fishing, etc. Price 75 cents.—Defiance Welding Co., Defiance, O.

Rie Nie Refinishing Outfit

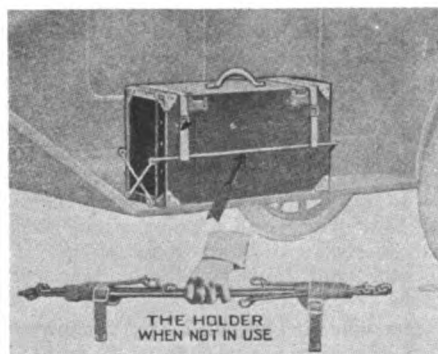
Complete assortment of colors, brushes, sandpaper, etc., enabling the

Grip-Tight Luggage Holder

An adjustable device which will carry all thicknesses of suitcases up to 17 in. in width and 26 in. in length. It is readily attached and quickly removed. Price \$4.—The Grip-Tight Holder Co., Norwich, N. Y.



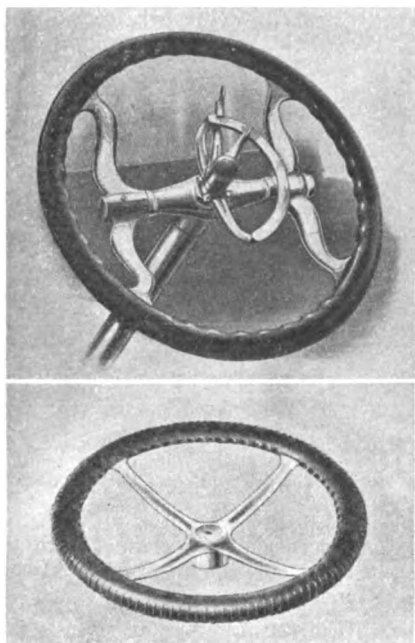
Hawkeye basket refrigerator, metal lined, and with ice compartment in one end



Grip-Tight luggage carrier



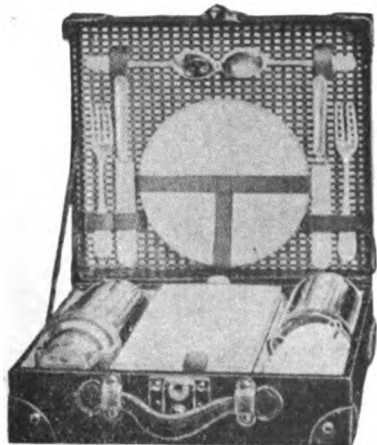
Auto refrigerator basket



Povasco steering wheels. Upper, tilting type. Lower, model L with unusually firm rim grip

Povasco Steering Wheels

Increased comfort is the salient feature in two types of steering wheels. One is the tilting wheel, which is so hinged that it may be turned parallel to the steering post, thus making it extremely easy for the largest driver to get in position behind the wheel. The rim is condensite and the spokes are aluminum. Price of 18-in. wheel, \$15. Model L wheel has a roughened rim, which is particularly desirable for drivers who wish an extremely firm grip. There is a polished aluminum spider and a rim which resembles highly polished ebony, but is superior to it because it cannot crack or split under the action of the weather. Its lustre is permanent. Price of 18-in. wheel, \$15. Both styles are supplied also with an electric heating unit embedded in the rim and invisible. Current is drawn from the storage battery. The prices of these wheels vary, depending on the type. Four special styles for Fords are made, plain, \$8; tilting, \$15; warmed and tilt-

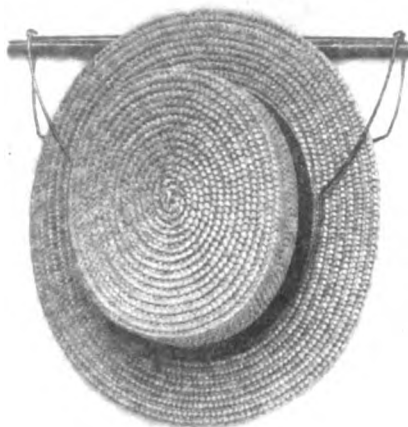


Motor lunch kit

ing, \$18; tilting but with dimmer instead of heating units, \$18.—Pouvail-smith Corp., Poughkeepsie.

Globe Automobile Boxes

Steel boxes for many purposes are made. Tool boxes are built in sizes running from 10 $\frac{3}{4}$ x 5 $\frac{1}{4}$ x 9 $\frac{1}{4}$, selling for \$2.25 up. Special boxes for Fords sell for \$2.15 up. Trunk boxes, 30 $\frac{1}{2}$ x 14 $\frac{1}{2}$ x 16 $\frac{3}{16}$, capable of holding two ordinary suitcases, \$10. Refrigerator boxes



Auto Hat Hanger mounted on robe rail

with three compartments, one for food and silverware and two for bottles, \$10. Underslung boxes for mounting beneath the floor and mammoth suitcase holders for mounting on the runningboard, \$25 and \$30.—Globe Machine Stamping Co., Cleveland, O.

Auto Hat Hanger

The Auto Hat Hanger is a device so arranged as to hang on the robe rail or any convenient projection and holds the hat in the same manner as it is held under a theatre seat, and is particularly adapted to the summer months, when the driver desires to remove his hat yet wants it securely fastened in the car. It is adapted to any kind of hat—straw, Panama, fedora or derby. It is made of wire and japanned so that it will not rust. The price is 25 cents each.—The Stadeker Metal Specialty Co., Chicago, Ill.

Motor Lunch Kits

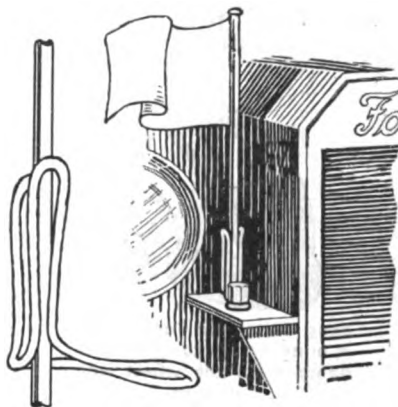
A large variety of motor lunch kits is manufactured, including the one illustrated, which is the No. 1717. The outfit consists of knives, forks, teaspoons, enamel ware, plates and cups, glass jar, metal food box and space for vacuum bottle. Price \$7.50. Other types sell up to \$30.—Warren Leather Goods Co., Worcester, Mass.

Rie Nie Air Drying Black Enamel

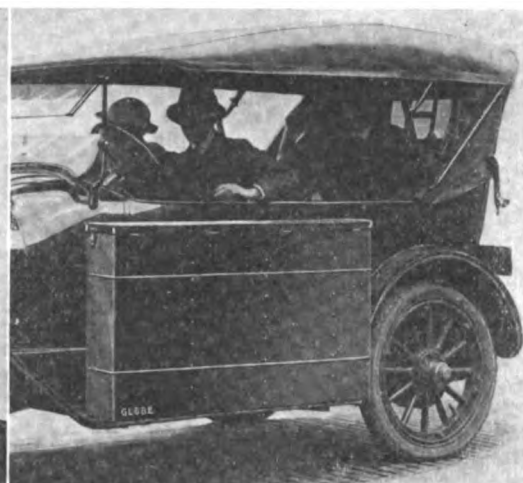
This enamel is furnished with a gloss or semi-gloss finish and dries in a few hours to bone hardness. It may be used for dipping or spraying and will bake satisfactorily. One-quarter pints, 25 cents; one-half pints, 40 cents; pints, 75 cents; quarts, \$1.25; one-half gallons, \$2.25.—Durkee-Atwood Co., Minneapolis.

Seng Flag Holder

This nickel steel spring fastener for carrying a flag may be attached to any bolt or nut on the radiator or lamps. Price 25 cents per pair.—Seng Auto Device Co., Chicago.



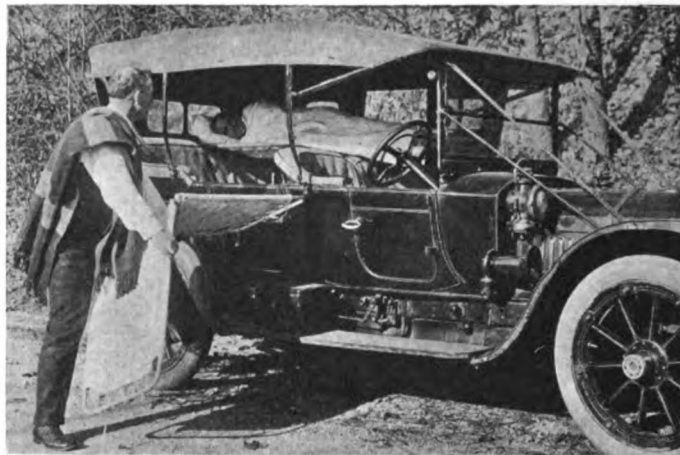
Seng flag holder



Mammoth suitcase and luggage holder for application to running board



The McMillan bed is suspended after the fashion of a hammock



Peoria Auto-Kot is made in two sections and rests on seat backs

McMillan Automobile Bed

A double bed suspended like a hammock under the raised automobile top. It can be set up in 3 minutes, and when not in use rolls into a bundle 4 in. in diameter and 2 ft. long. Price for Ford, \$8.50; for other cars, \$10. Tourists' tents are also made. A 7 x 7-ft. tent complete with poles, etc., costs \$9, and a 7 x 9 \$10.50.—Auto Bed Co., Bellingham, Wash.

Peoria Auto-Kot

A folding bed which is designed to fit any machine and which is supported from the seat backs. It is a double bed and each section consists of a skeleton of tubing, over which is stretched a fabric which takes the place of both mattress and springs. When not in use it folds up into a small space. Price \$10.—Peoria Auto-Kot Co., Peoria, Ill.

Seng Horn Button

This horn button for Fords is placed directly below the steering wheel rim, where it may be reached by the fingers without removing the hands from the wheel. This does away with the necessity of reaching around to the button on the steering post. It is readily attached by one screw. Price, \$1.25.—Seng Auto Device Co., Chicago.

Atlas Curtain Light Replacements

Broken curtain lights may be removed and new ones put in their place in a few moments since the light simply buttons in place on the curtain. Price varies with size, 4 1/4 x 10, 35 cents; 10 x 14, 90 cents.

Hansen Air Valves

A variety of air valves for connecting the hose line to the tire valve is manufactured. The model C automatically turns on the air when it is pressed over the valve stem. It is an L type. Price \$2.50. The model D is similar except that there is no bend in the passage. Hose clamps designed to make a tight connection between the hose and the metal fitting are made for 1/4 and 3/8-in.

hose. The end of the hose is clamped tight so that leakage is impossible. Price 80 cents and \$1.—Hansen Mfg. Co., Cleveland, O.

Rie Nie Dressings

Mohair dressing and waterproofing is designed for renovating mohair tops and is guaranteed not to stiffen the material or cause it to crust or crack when folded. Mohair top cleaner removes all dirt and grease from the top and brings back its original gloss. It is applied with a sponge. Top lining dye removes the streaky appearance of the mohair or pantasote lining after it has become somewhat worn. It is applied with a sponge.—Durkee-Atwood Co., Minneapolis.



Seng switch for Fords makes it unnecessary to remove the hands from the wheel when driving

Rie Nie German Radiator Compound

A tablespoonful added to the warm water in the radiator will quickly mend a small leak, as the substance solidifies

as soon as it comes in contact with the air. Price 50 cents.—Durkee-Atwood Co., Minneapolis.

Schilling Automobile Camp

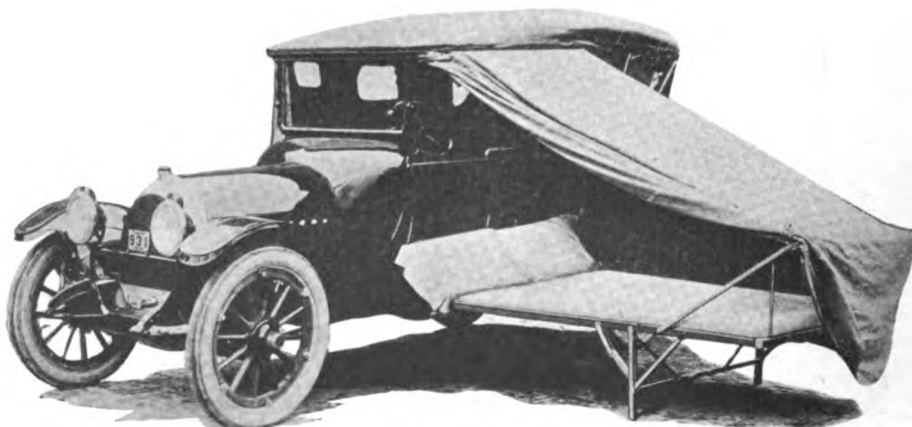
This consists of a spring bed, mattress and two pillows, the head of the head being mounted on the runningboard; a tent for protecting the bed is supported from the automobile top. When not in use the bed folds into a compact, square parcel, which is inconspicuously carried on the runningboard. The bed measures 48 x 78, and when rolled up is 5 x 8 x 51 in. Price \$42.—L. F. Schilling Co., Salem, O.

Aderente Headlight Deflector

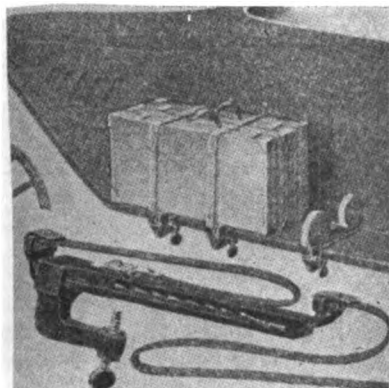
Non-breakable, non-dimming headlight attachment which deflects to the ground, the rays emanating from the upper half of the headlight. The device consists of a series of horizontal slats arranged to resemble a shutter. Price \$2 per set.—Jay & Dee Specialty Co., 41 Park Row, New York.

The Duplex Foldables

Duplex automobile pails have splash-guard, strainer and spout made of heavy brown waterproof canvas. Metal parts are rustproof spring steel. Six-quart capacity, \$1.50; 10 quarts, \$2. Handy baskets, wash basins, minnow buckets and fishing creels are made on the same principle.—Planet Co., Westfield, Mass.



Schilling bed which folds up into a small space on the running board when not in use



Touring luggage carrier which is clamped to the running board

Quik-Ezy Tire Tool

A tool for expanding or contracting split demountable rims. It is Y shaped and folds up into a small space when not in use. Up to 34 in., \$2.50; 36-in. rims, \$3.—H. L. Hurst Mfg. Co., Canton, O.

Rie Nie Rust and Scale Remover

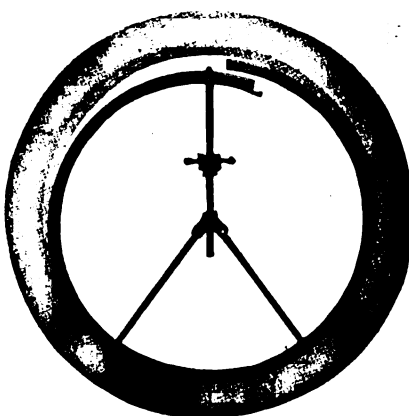
Designed to remove the scale, rust and sediment from the interior surfaces of the cooling system. Will not injure metal or rubber, it is said. One-pound cans, 75 cents; 5-lb. cans, \$2.50.—Durkee-Atwood Co., Minneapolis.

Touring Luggage Carrier

This carrier makes it possible to carry the luggage on the runningboard, and when it is not in use it may be unclamped and removed from the car. It will fit any runningboard; there are no holes to be drilled, the device is simply clamped in place. Price \$2.50.—Jay & Dee Specialty Co., 41 Park Row, New York.

Peerless Automobile Specialties

There are eighteen different compounds for improving or preserving the appearance of the car. Mohair top dressing waterproofs and dyes the top fabric; leather top dressing does the same for leather rubber compound or pantasote tops. Ford top dressing is designed to give the fabric a rich black gloss finish. Cushion dressing brightens the leather—it will not rub off. Lamp enamel is made either with a bright or a dull finish. Cylinder enamel is made in black and gray. Black japan is used for touching up all parts, and fender japan is especially for the fenders. Mirroroid is a varnish renewer which brings back varnish which has lost its lustre. Lining dye, rim paint, tire paint, liquid wax, body polish and battery box black, which is acid-proof, complete the line. Prices are 30 to 35 cents per pint, and all are quick-drying. Peerless color finishing varnishes are offered in several colors and enable any owner to repaint his car at small expense and with little effort. Pints, 90 cents; quarts, \$1.60.—Columbus Varnish Co., Columbus, Ohio.



Quik-Ezy tire tool for contracting or expanding split rims



Duplex folding bucket

Se-Ment-Oil

Self-acting radiator cement which stops all small leaks automatically. It dissolves in the water and circulates throughout the cooling system. Whenever the compound strikes the air it sets. After the leak has disappeared, drain the radiator and refill with fresh water. The whole operation should not take more than 15 min. Price, 75 cents.—Northwestern Chemical Co., Marietta, Ohio.

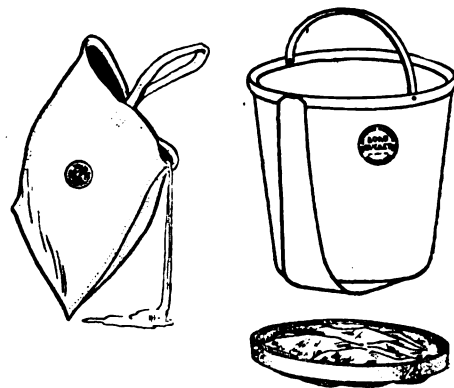
Avery Spring Lubricator

Consists of fibrous strips built up with graphite compound which are inserted between the leaves of the springs. Box

Display Helps for Dealers



This is one of the window display stands being supplied by the Hall-Thompson Co., Hartford, Conn.



Planco folding bucket; right, Boko folding bucket

of sixty strips, \$1.—Northwestern Chemical Co., Marietta, Ohio.

Scott Folding Water Pail

A folding water pail with bale for carrying and a form similar to an ordinary steel pail; \$1.50 to \$3.—Scott-Omaha Tent & Awning Co., Omaha.

Planco Folding Water Bucket

A folding bucket easy to handle and to pour from made out of heavy waterproof canvas, which holds over a gallon, and when folded measures 4 x 10 1/4 in.—Planet Co., Westfield, Mass.

Boko Water Bucket

A folding water bucket so designed that it is possible to carry 2 gal. of water without danger of leakage. Takes up practically no space when not in use. Price \$1.25.—Defiance Welding Co., Defiance, O.

Carbonox Carbon Remover

A liquid carbon remover which acts by dissolving the charred oil which binds the flakes of carbon together. The loosened particles are then blown out of the exhaust. Divide about 1/2 pint between the cylinders, spin the engine a few times and allow it to stand 15 or 20 min. Price, 50 cents per can.—Northwestern Chemical Co., Marietta, Ohio.

Handy Horn Button for Fords

The horn button is placed at the center of the steering wheel, a much more convenient position than on the steering post under the wheel. It comes complete and may be attached in 5 min.—Price, 50 cents.

Tri-Cities To Serve Reserve

ROCK ISLAND, ILL., April 21—The Tri-City Automobile Trade Association, this week volunteered its services to the American motorists' reserve, organized a year ago. Because of the proximity of the Rock Island arsenal, the local dealers' action is regarded as important, as they are likely to be among the first of the motorists' reserve to be called upon if the government sees fit to use the motor car in the movement of troops or supplies.



Sell Sedans *this Summer*



THE dealer should try this summer to sell sedans, especially touring sedans. Several are shown on these pages, and there are numerous others. The dealer may think of these cars only as winter cars, and because he so believes and many motorists so believe the dealer should make an effort to push them—and for these reasons:

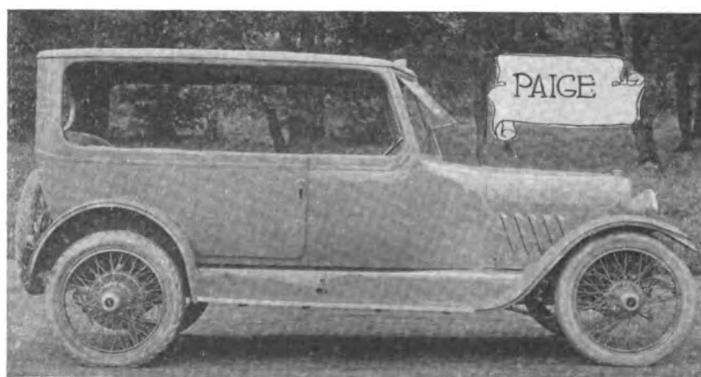
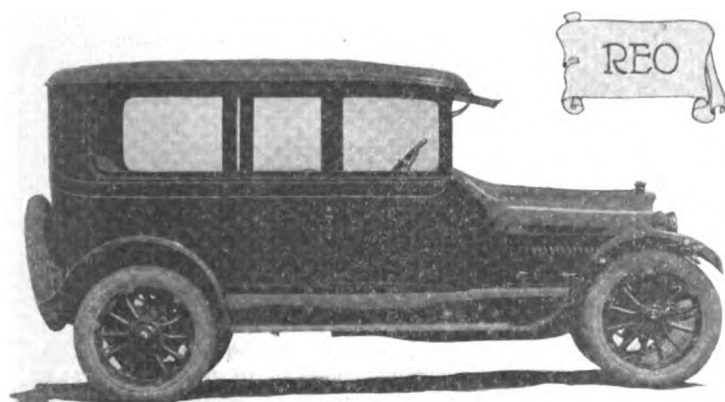
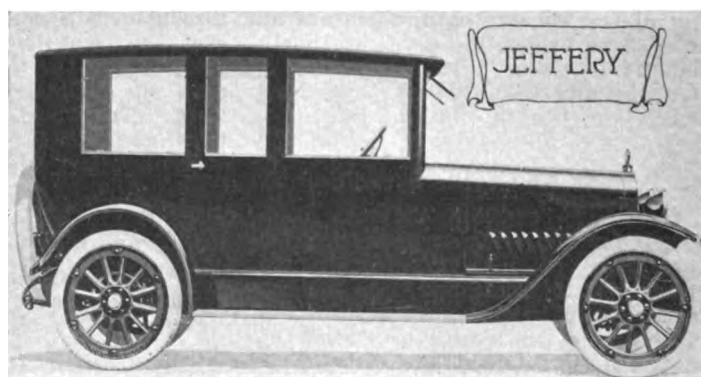
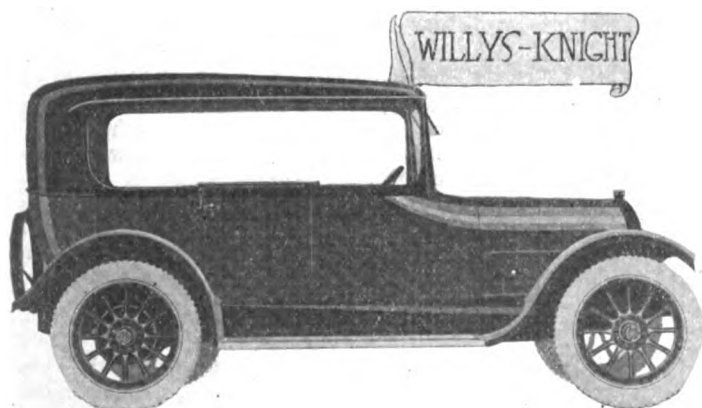
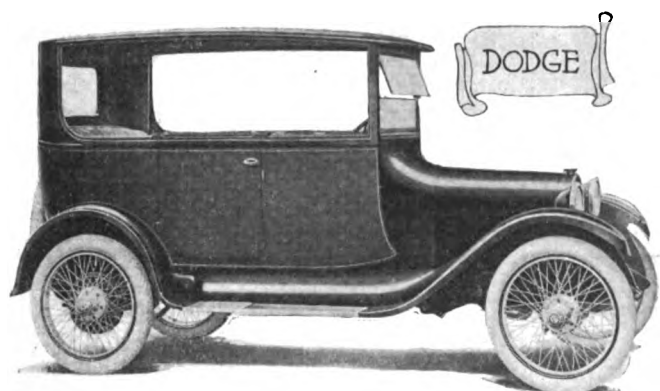
1—There is a larger commission on them because of the higher price.

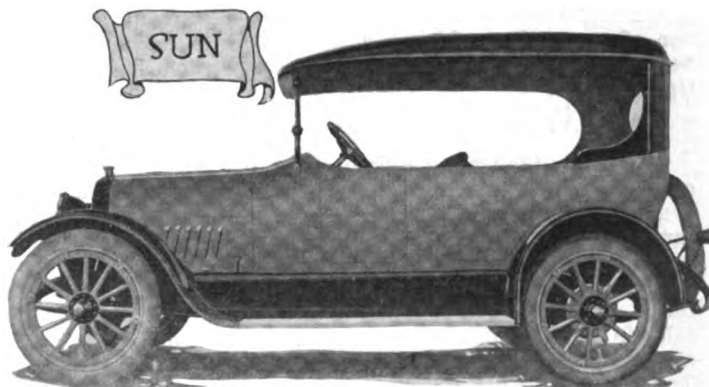
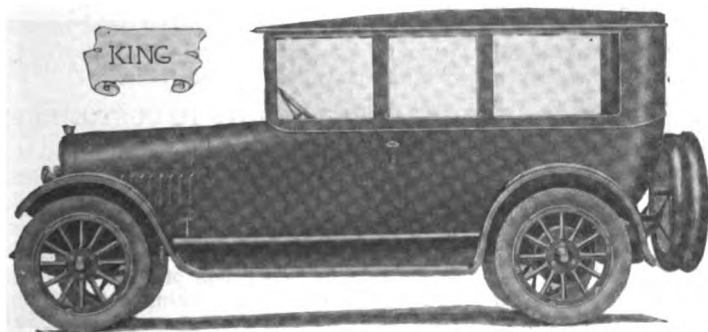
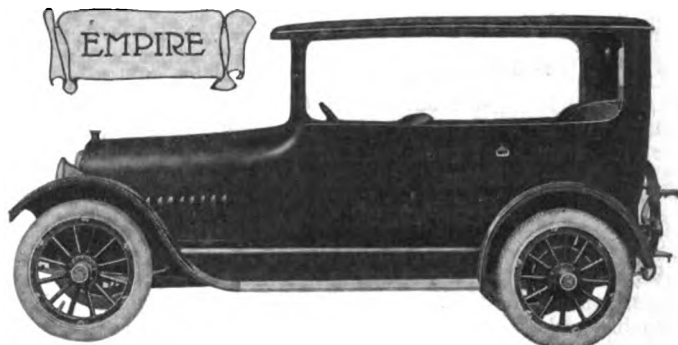
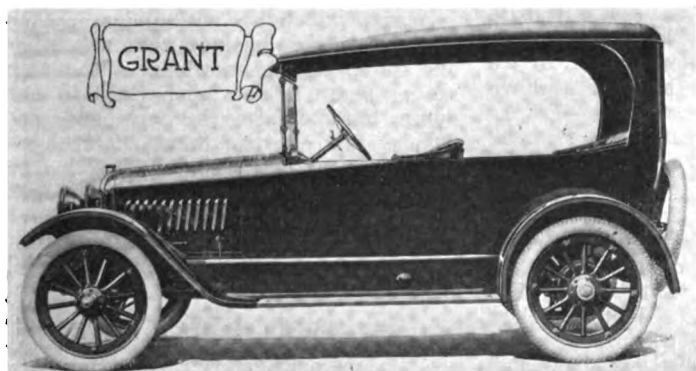
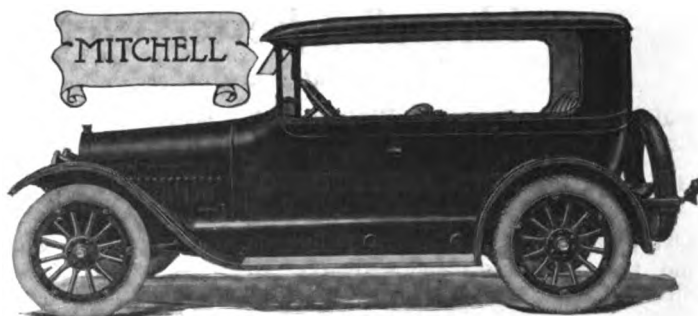
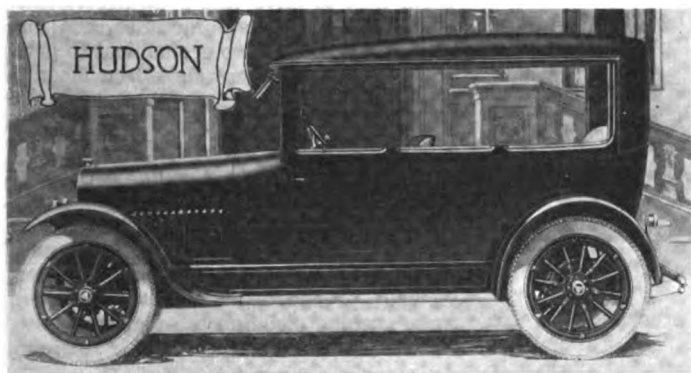
2—Their use is good advertising for the dealer.

3—The owner of an inclosed car is more looked up to than is the owner of a touring car, and generally is a higher grade of owner. This makes the crowd want to "follow the leader" and buy sedans.

4—These cars require more paid service, such as cleaning, etc., and this brings business to the service station.

5—They place the dealer a step in advance.





Sedan Sales Points

- 1—More class.
- 2—Adds air of dignity and prosperity.
- 3—Cool in summer.
- 4—Heavy top keeps out sun's heat.
- 5—Less dirt can enter.
- 6—Fresh air in plenty.
- 7—Like a sun parlor, especially on sunny, windy, chilly days.
- 8—Big windows.
- 9—Easily converted.
- 10—Convenient for use.
- 11—Always comfortable.
- 12—A car of luxury.
- 13—Beautiful.
- 14—Permits tapestry upholstery or slip covers.
- 15—Warm in winter.
- 16—In many bodies are these extra luxury sales points, which are a major rather than a minor feature: Cigar lighter, vanity case, robe rail, foot rest, disappearing chairs, umbrella hooks, dome lights, back corner lights, safety step lights and locks on the doors.



136 Ideas for Better Merchandising

(Continued from page 16)

dealer can do.—George H. Birdsey, Middletown, Conn.

102—SMALL TOWN ADVERTISING

For a small town I believe the best advertising is circular letters, billboards and the local newspaper.—George H. Birdsey, Middletown, Conn.

103—BETTER SERVICE

I aim to give better service than my competitors, because that is what makes me keep customers.—Isham J. Dorsey, Opelika, Ala.

104—PERFECT WORK

I will not let a shoddy piece of work leave my shop, no matter what I receive for it. I send out good work or none at all.—Isham J. Dorsey, Opelika, Ala.

105—COURTESY

My employees are all schooled in courtesy and my place of business is kept clean and attractive.—Isham J. Dorsey, Opelika, Ala.

106—PROPER ACCOUNTING

I use system in all things and was one of the first to adopt MOTOR WORLD's system of accounting, which I consider the best I have seen.—Isham J. Dorsey, Opelika, Ala.

107—YOUR MONEY BACK

I believe in the Golden Rule of do unto others as you would have them do unto you, and for this reason my advertising carries the following: "Your money's worth or your money back." I know these principles will win, for I have tried them. I have grown from three car sales in 1909 to 103 in 1916, and expect more this year.—Isham J. Dorsey, Opelika, Ala.

108—TALK TOURING

Circularize prospective buyers, telling in the letter some of the beauty spots easily reached by car. Mention the good roads leading to various country places and picture the real joy coming to the owner of a car. Make possession of the car seem a necessity rather than a luxury. Just as a home is necessary so is a car these days.—G. H. Grace, Grace Motor Car Co., Pasadena, Cal.

109—CLASSIFIED ADS

We carry small classified advertisements in the local papers and send out circular letters once and sometimes twice a month, calling attention to the repair work we do and the accessories we sell. We also use road signs.—Charles L. Turner, Turner's Garage, Peoria, Ill.

110—AFTER-SALE LETTERS

To hold our new customers and get more business, when we sell, for instance, a tire, in the course of a few days we write a letter thanking the customer for the order and giving suggestions as to the care of the tire. In

nearly every case this has resulted in the sale of more tires, accessories and repair work.—Charles L. Turner, Turner's Garage, Peoria, Ill.

111—SELL TRUCKS

Every dealer should handle a side line of trucks. Problems of pleasure car sales are missing in truck sales. No demonstration is required ordinarily—the prospect knows what he wants. If a demonstration is necessary, the demonstrator suffers no depreciation. Truck sales are increasing, and with a little salesmanship a profitable business may be built up. For example, in 1916 we sold 48 trucks. So far this year we have sold 61, and plan to sell 250.—Ed. L. Cousino, Sales Manager, The Grasser Motor Car Co., Toledo.

112—ENCLOSED CAR SALES

Make the closed or chauffeur-driven car sales a year-around proposition, instead of a rainy or winter one. The closed car can only be sold to a select clientele, but by concentrating the sales effort on that class, the closed-car sales become cumulative. One method we use is to have a closed-car sales week, and to keep a bulletin board in the salesroom having a neatly printed list of all the owners having our chauffeur-driven cars. As this list contains some of the best families of Detroit, it makes a mighty fine selling argument. This is just a detail of the intensive cultivation of the prospect list.—W. J. Bemb, Bemb-Robinson Co., Hudson Dealer, Detroit.

113—COMMISSIONS TO HOTELS

We find transient trade is a good means of tiding us over the dull months, so we pay commissions to door men at the leading hotels for directing business to us. We get lots of it in this manner.—J. C. Bartlett, Bartlett Garages, Philadelphia.

114—FIGURE IT OUT

We call all our salesmen together and have an enthusiastic meeting without going too strong on poor business. We next send a courteous letter to all our owners, calling their attention to the necessity of having proper repairs made. We also impress on

them that to have this done necessitates an outlay of money sometimes, and that it may be found more economical to get a new car. Car owners should be made to realize that the price allowed on old cars added to the cost of repairs will almost buy a new car.—William H. Eger, Mitchell Motor Car Co., Philadelphia.

115—EXTRA SALESMEN

We employed several extra salesmen and assigned them to the work of interviewing prospects. They were allowed to do nothing else and the plan was quite successful.—Enoch Moore, Jr., Moore Automobile Co., Wilmington, Del.

116—ORIGINAL SIGN

A sign which we put up last season brought us more business than any other one thing, to our knowledge. The sign read, "There is not much class to our dump, but we have the tools and machinery and can use them." Our location was poor with poor buildings. The sign attracted attention and brought business. It told the truth, as we have the best equipment in the city and turn out good work.—Telford Bros. Garage, Klamath Falls, Ore.

117—SPECIAL DAY RATE

As a majority of our customers are away during the summer, we make a special effort to attract transient and suburban trade by a special rate of \$5 a month for day storage.—J. C. Bartlett, Bartlett Garages, Philadelphia.

118—FREE FREIGHT TO CUSTOMERS

When our customers are away at summer resorts, we retain our hold on their trade by giving them free express service on any goods they wish to order from us. If a customer is at Palm Beach and wants tires, he has only to wire us and we express them to him at the same

Turner Garage
2006 Main St.

MACHINE WORK
A SPECIALTY
Open Day and
Night
Always at Your
Service

VISIT OUR ACCESSORY
STORE

Columbia Batteries
Goodyear Tires
GRAY & DAVIS
STARTERS
For Ford Cars
We Store Cars

*This is the style of small
classified ads used by the
Turner Garage. They
pull well and have
brought a lot of business
to the garage*

Are you having a lot of
trouble starting your Ford?
These cold mornings? Why
not have one of our Gray &
Davis starters put on. Try it
30 days at our expense. It will
end the starting trouble and
give you the best of light. See
us for Anti-freeze radiator
covers and storage.

TURNER GARAGE
2004 Main St.

price he could buy them in our garage. This reduces our profit slightly, but keeps our trade intact.—J. C. Bartlett, Bartlett Garages, Philadelphia.

119—PLEASE THE CUSTOMER

Do guaranteed work. Be sociable. Talk business or anything but politics or war. Advertise by personal letter and local newspapers. Keep the shop clean and neat and see that every man is polite to all customers and prospective customers. Please the public.—Charles Bevis, Hoosier Vulcanizing Works, Santa Ana, Cal.

120—COMMISSION BASIS

Place every man on the sales force, from the salesman down, on a commission basis. We had our men on a drawing account and commission basis, but now the salesman has to sell a car to get a dollar. This makes the salesman feel that he is in business for himself, and gives him much more individual responsibility. The sales manager is kept on his toes and does his duty from his end. By this the poor salesman soon is forced to drop out, and the good men are kept good. We also make the men assume more responsibility by making them own their own demonstrator. Besides stopping a large leak, the cars are kept in better condition and are better demonstrated.—Geo. W. Franklin Co., Detroit, Mich.

121—ACCESSORY DISPLAY STAND

Push the sales of accessories by placing a display stand in the garage. At the right of our main entrance we have built an accessory display case that is about 10 ft. square and 4 ft. deep. The front is covered with a plate glass window. In this case all seasonable accessories are displayed, and the display changed often. The drivers see the items they wish here, and the next time they come in with the owners, see that the owners know about them.—H. W. Spalding, Packard-Missouri Co., St. Louis, Mo.

122—MECHANICAL DISPLAY

Use the chassis and the parts board as a part of the regular display in the salesrooms. Much evidence to the contrary, the public want to see a car undressed, and compare this with that on cars that they already know. We have the chassis and the parts board right at the front of the showroom, in a most prominent place. On Sundays the street in front of the window is crowded with people, and many of them eventually come in. Once in, the chassis is used by the salesmen in their sales talk.—Geo. W. Franklin, Dort Dealer, Detroit.

123—PROMOTE TOURS

Stimulate short tours from your city as a center—in the name of your car. Half of the drivers run around in a hit-or-miss fashion, and have no idea where they can or may go. The dealer can make a study of the various short drives around the city, and offer them as a 10-mile drive, a 15-mile drive, and so on, up to a regular tour. By having a pathfinder find, photograph, map and

Turner's Two Letters

Mr. John Jones,
Peoria, Ill.

Dear Mr. Jones: A few days ago we sold you a Non-Skid Goodyear Tire. As you do not know much about them, have never looked into their merits, the writer wishes that you would pay particular attention to this casing. It is known as the wrapped tread tire, and is 10% oversize. If you will be sure and keep it pumped up to eighty pounds pressure of air, or not less than seventy pounds, you will find that it will give you good, long life.

Another thing on any of your tires is to keep the small holes filled with tire putty or vulcanized shut with one of those portable vulcanizers. We have them for sale for from one dollar up to three dollars and fifty cents.

From our own experience, it pays and pays well to take care of the small holes. Most any of the tires are guaranteed to give you 3500 miles under ordinary conditions without taking care of the holes. But, if you do take care of the holes and keep the sand and water out of them, you will double your mileage and then some.

What we really started out to say was that we want you to note carefully the service you get with Goodyear tires, because we want you to be a Goodyear customer, of which we have a great number. Goodyear tires are known the world over and are being used on more cars now than tires of any other make.

Please keep these pointers in mind which we have given you and you will find that you will be well repaid for the extra trouble.

Respectfully yours,

TURNER GARAGE,

By Chas. L. Turner.

Mr. John Jones,
Peoria, Ill.

Dear Mr. Jones: Your son bought a 30 x 3½ Non-Skid Goodyear Case of us this morning and we are quite anxious that you should like this tire. We have been selling these tires for three years and they are certainly "there" when it comes to mileage, provided you keep a reasonable amount of air in them. As you have a new tube in this case, would recommend that you carry seventy or seventy-five pounds of air in it all the time, and you will be surprised at the mileage you will get out of it.

Should any cuts or sand blisters develop, do not neglect them, but see that they are taken care of at once. We have a tire putty that is very good for such places and if you have not the time to take care of them and will drive by, we will see that they are taken care of.

Our main object is that you should get the service you have a right to expect.

Yours very truly,

TURNER GARAGE,

By Chas. L. Turner.

Soon after Turner sells a tire he writes the purchaser a nice personal letter like this. It makes the purchaser feel good to be thought of—and it sells more tires and tire accessories

describe these trips and using them both in the advertising and editorial columns of the papers, the dealer can do much to keep his car before the public.—Geo. W. Franklin Co., Dort Dealer, Detroit, Mich.

124—HOLD TESTS

Keep your car constantly before the public. Do this by staging tests on your car at regular intervals. Make newspaper men judges of the tests, have many photographs taken, and back the tests up by advertising. This, together with the free publicity given by the papers, will make the public more interested in the car than would general statements not based on particular fact. For example, run a radiator or cooling test in the hot weather. The test is to take the car, well loaded, out onto the sandy country roads and let it wallow around in the sand for 2 hours. The conditions are made as bad as possible, yet the car does not overheat. Next stage a high-gear traffic test. Have the newspaper men seal the car in high and then run it half a day all through the city traffic without difficulty.—Geo. W. Franklin Co. (Dort), Detroit.

125—SALES CONTEST

The Cole dealer in Los Angeles is putting on a departure from the ordinary salesmanship contest. He had each salesman prepare a list of his fifty best prospects. A prize is awarded the man selling the largest percentage of this list each month. The dealer sends three letters a week to each prospect and the factory writes the same number, calling attention to reasons why he should buy a Cole.—Los Angeles.

126—EDITS MOTOR COLUMN

Teddy Tetzlaff, the former racing driver, has found it greatly to his advantage in conducting a public garage to edit a column in the Automobile Section of a Los Angeles newspaper, in which he answers questions in the effort to help solve owners' motor problems. It is not necessary to have had racing experience to do this, and the newspapers find such a department valuable to their readers.—Los Angeles.

127—FOLLOWS UP BUYERS

A repairman in Los Angeles says he has found it profitable to subscribe for the daily report of motor car registrations. He sends each new owner in the city a printed card of a congratulatory nature. Later he follows this with a letter stating the new car has now been in service a certain length of time and suggests minor repairs that might be advisable.—Los Angeles.

128—USED CAR BULLETIN

Used-car sales may be promoted by the use of a used-car bulletin. Twice a month we issue a neatly printed bulletin, listing and describing all used cars we have on hand, together with the prices and photographs. This bulletin is so made that it may be used as an insert in the Super Six News that is sent to owners and prospects. The owner can then tell any interested person about the used-car bargains we have, or per-

haps may be in the field for a used-car himself. The prospect may have decided to buy a used car, and hence we do not lose him.—W. J. Bomb, Bomb-Robinson, Hudson, Detroit.

129—PORTABLE ENGINE STANDS

Special engine repair stands were made from 1½-in. pipe. An engine is removed from the chassis with a portable derrick and placed in the frame, which may be wheeled about the building. This has effected better work and a saving in time.—William H. Vinal, Russell P. Taber, Inc., Hartford, Conn.

130—MAKE SPORT MODELS

When a body is in poor condition, make a sport model of it. Put the car in good mechanical condition and paint the car a gaudy color. Let the boys run them to dinner and on Sunday afternoons. They will sell themselves at a profit.—C. R. Pierson, Salineville, O.

131—RETRIM OLD CARS

Where the bodies are good, repaint them a bright, sensible color and have the cars driven where people can see them running every day. This will help sell them.—C. R. Pierson, Salineville, O.

132—SELL TO MECHANICS

Keep a list of fellows who are somewhat mechanical and who would like to own a car and rebuild it themselves. Sell the car to them as is at what it cost you.—C. R. Pierson, Salineville, O.

133—ORDERING PARTS BY TELEPHONE

When necessary to turn out work in the shortest possible time, we have ordered parts by long distance telephone and by telegram.—C. R. Pierson, Salineville, O.

134—BOUGHT MORE TOOLS

We bought more tools, including a Weaver towing truck and a 20-ton press, and advertised that our shop was more up-to-date and better equipped.—C. R. Pierson, Salineville, O.

135—WORK ON SCHEDULE

We have each job dated ahead and keep to the schedule as nearly as possible.—C. R. Pierson, Salineville, O.

136—QUICK OIL SERVICE

We have largely increased our oil sales by displaying 30 one-quart bottles of oil beside the gasoline curb pump. The bottles are carried in a crate on wheels. Customers appreciate the fact that the oil is all measured out and ready for delivery, thus eliminating delay. Increased sales are also the result of having the oil plainly in sight so that the man who drives up for gasoline is reminded that he needs oil also.—Roy T. Sprague, Fowlerville, Mich.

Gibson's New Catalog Out

INDIANAPOLIS, April 21—Read regularly and thoroughly the leading motor car publications, is the advice offered by The Gibson Co., which has just issued its annual accessory catalog. Twenty-five thousand copies will be distributed. A portion of the catalog is devoted to



Here's a good idea for a road sign; it's simple, too.

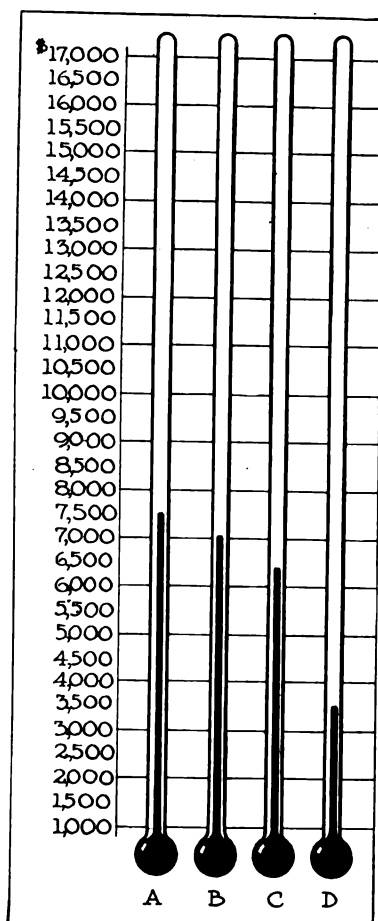
an announcement of a Commercial Development Bureau, a department created for the purpose of extending without charge direct advisory aid to patrons of the company who desire to increase business efficiency in the storeroom and the shop. The catalog contains 384 pages and lists approximately 4000 different accessories. The cover is an attractive four-color scheme with a striking embossed effect presenting the Gibson quality seal. Half-tone illustrations are plentifully used and a complete cross-index system makes the finding of any article easy.

Stockton Pleased with Show Success

STOCKTON, CAL., April 19—Stockton's trade has compiled results of its motor car show, held the week of April 8, and is immensely pleased with it. Quite a few sales were made and summer business has been nicely stimulated. All the dealers took part and the exhibition was run on big-town plans under the direction of Samuel S. Cohn, secretary of the San Joaquin Automobile Trade Association. A Hawaiian orchestra furnished entertainment and Saturday night dancing was permitted.

Taking Salesman's Selling Temperature

How the Grasser Motor Co., Hupmobile Dealer, Detroit, Staged a Salesman's Contest



THE Grasser Motor Co., Hupmobile dealer, Detroit, is speeding up spring sales by holding a salesman's contest during the month of April.

First, G. Edward Bleil, branch manager, estimated how many cars ought to be sold in the month. He knew that all his salesmen were not equal, and hence could not sell proportional parts of this estimate. So to put the contest on a fair basis, and to prevent discouragement, he set a definite number of cars the men must sell to qualify for a prize.

To win first prize, \$100, the salesman must sell at least 12 cars; to win second prize, \$75, 10 cars, and third prize, \$50, 7 cars.

The record of the salesmen is kept on a chart, the amounts sold being shown by the height of the column in the thermometer representing the individual salesman's sales.

In order to prevent the men holding back on their sales and to induce them to make a good record through the contest, Bleil did not announce the contest until April 1. Hence the men all started equal.

The contest was preceded by an advertising campaign that tended to plough up the prospect field and stimulate the sales, but the main effort was concentrated in creating a sporting spirit among the salesmen themselves. The sales contest did this.

Gasoline Record

Blank Garage

From
Time Date

To
Time Date

Day

Night

	Gal.
Tank Measure..... A. M. ....	.....
Received .....	.....
Total on Hand.....	.....
Sold to..... P. M. ....	.....
Tank Measure..... P. M. ....	.....
Over .....	.....
Short .....	.....

	Gal.
Tank Measure..... P. M. ....	.....
Received .....	.....
Total on Hand.....	.....
Sold to..... A. M. ....	.....
Tank Measure..... A. M. ....	.....
Over .....	.....
Short .....	.....

Signed.....
Day Foreman

Signed.....
Night Foreman

Summary

	Gal.
Total Gal. Sold 24 Hours Ending..... A. M. ....	.....
	<small>Date</small>
Total Gal. Bought 24 Hours Ending..... A. M. ....	.....
	<small>Date</small>

Cost per Gal.....	\$.....
Selling Price per Gal.....	.....

How To Plan a Sales Campaign For These Cars

The Cars Chosen For This Campaign List About \$1200

Abbott	\$1,195	Detroit	\$1,250	Liberty	\$1,195	Regal	\$1,200
Anderson	1,250	Empire	1,235	Mitchell	1,150	Reo	1,250
Auburn	1,145	Halladay	1,150	Monitor	1,095	Stephens	1,150
Bour Davis	1,250	Hollier	1,185	Paige	1,175	Studebaker	1,250
Case	1,190	Jackson	1,195	Paterson	1,165	Sun	1,145
Chalmers	1,250	Lexington	1,185	Pilot	1,200	Velie	1,135
Despatch	1,210						

1—Analyze your car. Set down every selling point. Mark every selling point that is duplicated by several other cars. List those that are exclusive. List those that are mechanical and those that are not. Plan a sales talk as follows:

a—First show prospect the car at a distance of about 10 to 20 feet, depending on whether the talk is indoors or out. Call his attention to appearance and lines.

b—Then approach the car and take the prospect first through the tonneau, the front seat and then around the car, having him sit in each seat. Call his attention to each feature you have. If he is not mechanically inclined, go light on the mechanical story. In fact, unless he begins to ask mechanical questions, say little about those things.

c—If you must demonstrate, make it short. A half hour is enough, but cover every kind of road you should cover. In showing acceleration let the prospect move the throttle up himself, but you **KEEP THE WHEEL.** This can be done if the prospect never has driven.

d—Try to close at once. Don't wait until the **NEXT CALL.** Go right through as though you were **SURE** the sale would be made, but, of course, your sales sense should tell you that once in a while you will meet a man who must be seen again. Your own judgment must be your guide. But try to make the end of your sales story a contract.

2—Have a sales meeting on the preceding subject. Study the voices, tones and actions of each salesman as he works on a practice sale. Perhaps criticisms will help some salesman wonderfully.

3—Using the sales information you accumulated at the beginning, plan a series of ads, perhaps with the assistance

of the factory. Advertise every day or every other day. Determine how much you can spend and lay out this part of the campaign. Begin advertising at once unless you are far north where good roads are still quite far distant in point of time.

4—Get a list of prospects. Get more than those you have been carrying all winter or have accumulated at the shows. Dig down into a virgin field. Get some new stuff. Proceed as follows:

a—Depending on your town, ascertain what income a man must have before he

tain streets in certain sections. Take the city directory and pick names from streets occupied by these classes and compile a list. You will get many names and have a big list, but you are going to make a big campaign and should start with a big list.

5—Send out a letter, stamped return card and, if possible, an exceedingly attractive picture of the car. If the picture isn't a pippin don't send it out.

6—Begin making calls. Have the salesmen work in sections and not scatter their effort. And have a downtown man or men. In case a call at a residence reveals that it is advisable to see the man at his office let the salesman at once telephone the salesroom and have one of the downtown men shot over to this office. Under this plan no salesman will **OWN** a prospect; arrange some sort of bonus plan for the campaign to make co-operative work an inducement. Whenever a card is returned follow it up by a personal call.

7—Write a series of letters on such subjects as Comfort, Appearance, etc. A set was printed in Motor World of April 4 on pages 12 and 13. These will be reprinted if you so desire or perhaps you have saved or can secure that issue. When a man seems impressed by comfort shoot the comfort letter at him, etc.

8—When it seems that a prospect is hopeless, move him to a "dead" file. If he is "live" move him into a "very live" file. If he buys put him in the owners' file, and keep after every name in the file until something is done with it.

9—There should be a manager who does nothing but manage the campaign. He should be the snappiest, liveliest man in the organization.

You Can Do It

THERE is nothing mysterious about this merchandising plan. It is just a plain, straightforward business method of increasing sales.

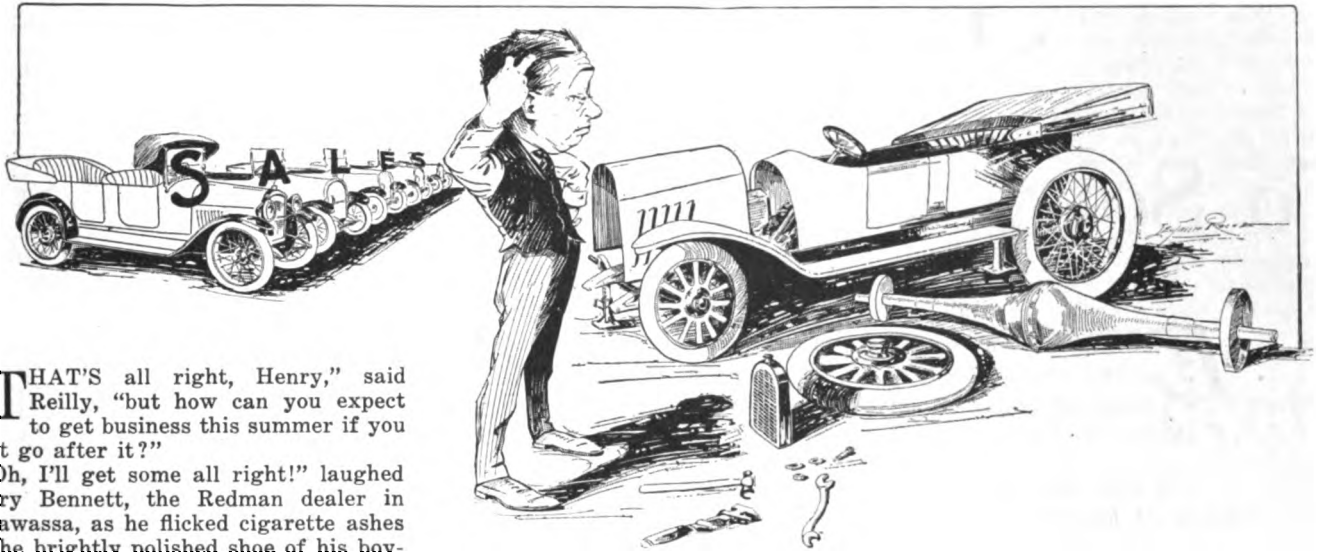
Any dealer in any city can take this plan exactly as it is and put it to work—and it is bound to bring results. It is based on five business-efficiency principles:

1—Investigate. 2—Plan. 3—Operate. 4—Reward. 5—Record.

can buy your car. Assuming that the car costs \$1,200, a man must have about \$2,000 before he is a legitimate prospect. He must also have, let us say, an income of \$50 a week, which is approximately \$200 a month. If he can rent a small garage back of his home for \$5 a month, pays \$40 house rent, spends \$60 for living and \$20 for running the car, this will make his total cost \$125 a month, leaving him savings of \$75 a month. Without the car he would have saved, say, \$100 a month, which would give him \$2,000 in less than 2 years.

Now, who get \$50 a week? Lawyers, doctors, engineers, managers and others. Not every one of these, but many of them. And they generally live on cer-

Finished Product Depends on Materials



"THAT'S all right, Henry," said Reilly, "but how can you expect to get business this summer if you don't go after it?"

"Oh, I'll get some all right!" laughed Henry Bennett, the Redman dealer in Callawassa, as he flicked cigarette ashes on the brightly polished shoe of his boyhood friend and business rival, Cornelius J. Reilly, the Sennett dealer.

"That's your old trick all over again, Henry," Reilly was serious. "You go through every summer in a mad whirl and then every fall you scratch your head and wonder if you couldn't have made more money some way. You work without sales system, common sense or intelligence."

"Maybe I do, but what am I going to do about it?" Henry became a trifle serious.

"Work in a businesslike way. Get ALL of your share of business this summer. Don't let me and the rest of the Row take it away from you. Be a spizz boy instead of a fizz guy. Come here!" Reilly walked to Henry's prospect file and began taking out cards.

"Who's this man Burton? Where'd you get his name? Does he own a car? Can he buy a car? When'd you see him last? What——"

"I Don't Know!"

"I don't know! I don't know! I DON'T KNOW!" asserted Henry.

"Then what good is his name in your file?" And Reilly threw the card in the waste basket.

"Who's this man De Pew? How long has he been in this morgue? Do you ever call on him? Will he buy a car? Has he bought a car?"

"I don't know!"

"Then what good is this card?" And Reilly fired Prospect De Pew into the waste basket.

"Say!" protested Henry. "Do you know you are throwing my prospect cards in the waste basket?"

"Sure I know it! And I'm doing you a favor. They ought all to be fired in the waste basket and then maybe you'd get a live file and go to work like a real salesman.

"Henry," Reilly sat down and leaned forward toward Henry, "do you know you're going at this thing all backwards? Do you know this little file should be

By Ray W. Sherman

the foundation of your business? Do you know your prospects are the materials out of which you build your sales? And do you know you have the most misfit, rotten, punk lot of materials I have seen in a long time? It's like trying to build a Packard out of the hit-and-miss parts in a junk yard."

One of the Fundamentals

Henry said nothing. Reilly continued. "One of the fundamentals of the fine cars we all sell is the excellent materials that are used in the factories. They are inspected, tested and made to come up to a certain standard. And under those conditions the factories turn out cars that are the pride of millions of owners and a source of profit to thousands of dealers.

"The car made of good materials is a source of satisfaction.

"And now—you and I in our business try to build satisfaction to ourselves, and this satisfaction is mostly money profits. To build this structure of profits we must have good materials, and our only materials are prospects, those names in the file. Out of that mess that you have how do you expect you are going to build anything at all? There are a few good ones in there and a lot of poor ones. It is like trying to build a car with parts that won't fit together.

"To create any profits for yourself you must have a good file filled with good names. Without it you may make some profit, but with the right sort of materials you will make a much greater profit. You're overlooking the one, big, important thing in your business.

"That man Burton, whom I threw in the waste basket, may have been a live prospect once, but you don't know now where you got the name or what good it is. If you don't keep the file alive you might better can it. Sort out the dead

ones and get some good working materials for the summer season. Ten live prospects are worth a million dead ones.

"Get the names of some men who can buy cars and haven't cars. See if you can't make live prospects out of them. List the car owners in the price class below the Redman and circularize them strong. Try to pull them up a step and get them to be Redman owners.

"Have a conference of yourself and your salesmen, go through the files and clean them out. Get a good working list. List some of these people as used car prospects. At least learn something about the names in the file. Don't let it be something you don't know anything about, a mystery, useless and a waste of space.

The Summer Is Short

"If you become convinced you can't sell a man with a reasonable amount of sales effort can him and get to work on a live one. The summer is short, your sales force is limited in size and you can't afford to waste your time trying to make a good finished product out of a lot of raw materials that are going to eat up your time and energy.

"What would you think of a manufacturer who bought raw materials that were so much off-size that he had to spend a lot of time and money getting them into shape? And what would you think of a man who tried to build a car out of 30-inch wheels, 40-inch wheels, a Packard frame, a Ford body and a Fiat radiator?

"Yet that's about the way you're operating with this prospect file. I'll bet you've sat through these million-dollar spring days without a thought about getting your works in shape. I——"

But Reilly put on his hat, got near the door, took the prospect file in his hands, dumped its contents on the floor—and beat it.

"There!" he said. "Now maybe you'll find out what's in it!"

Six Ways

To Solve The Used Car Problem

EEDITOR MOTOR WORLD—*The used car situation in the City of Richmond has become very acute, and therefore the Richmond Automobile Dealers' Association has appointed a committee, of which I am a member, to devise ways and means of alleviating this condition.*

It has come to my attention that you are printing a number of articles of different ways of handling used cars in various cities, and it is my belief that you have certain information whereby you can advise us definitely which of the systems you have published works out to the best advantage.

I will appreciate it very much if you will give this matter your very careful consideration so that I can lay any facts which you are able to give me before the Dealers' Association here so that we can eliminate our present troubles, and I know that it will be appreciated by every one of the forty-two dealers.—B. R. DODDS, Harper Overland Co., Richmond, Va.

THERE are various methods for handling used cars. One extreme is not to have anything to do with them. The other extreme is to take them in at what the car owner says they are worth. Either extreme is probably a short-cut out of business.

Different plans have been used with success by dealers. But every successful plan involves this fundamental—don't forget it—Base your allowance upon the resale price. You can't do otherwise and not lose money. Here are several plans:

1—DON'T TRADE AT ALL

This means that the car owner must dispose of his own used car. If every dealer did this it would work well, except that a small percentage of owners might run the old car another year. But, since a large percentage of new car sales has a trade hitched to it, it is better to handle the cars, but on a sane basis.

2—RESELL ONLY

This means that the dealer first sells his new car and GETS THE MONEY. Then he agrees to sell the old car at the best price he can get. For this he may or may not charge a commission. He should, however, get from the owner a written statement of the maximum and minimum he will accept. If this minimum cannot be obtained after an attempt to sell the car the dealer should get another written consent for a lower price.

3—TRADE FOR PART VALUE

Under this plan the dealer allows the car owner a price the dealer is certain he can get for the old car. If the car sells for more than this figure the balance is paid to the customer. Commission may or may not be charged for this work. The dealer, however, should be absolutely sure of his guaranteed allowance, for he will have a hard job collecting from the customer in case the resale finally has to be below the allowance.

4—TRADE OUTRIGHT

This means that the dealer makes an allowance for the old car, takes it in trade without any conditions and resells it. He may resell (a) without doing anything to the car, selling "as is," (b) after a tuning up, repainting or semi-overhaul, or (c) with a thorough overhaul.

This plan will, MOTOR WORLD believes, work out best. It necessitates a used car department or, at least, a man whose whole or part duty is being used car manager. When cars are to be taken in trade this manager's appraisal is final. It must not be altered or the plan is rendered useless. There are existing cases of where it has been so spoiled.

After the new car is sold and the old car is in the used car department, the used car manager does what he pleases with it, overhauling, tuning up or selling "as is." In case it is one of the dealer's own cars it is best to put it in

pretty good condition, else it may prove a black eye later on when it gives trouble.

Be Absolutely Honest

In selling any traded-in cars be absolutely honest. Build a reputation for reliability and it will make the cars move much easier.

In case the used car manager intends to do work on the car he must make an allowance for this when making his appraisal at the time of the trade.

This department may be run at a break-even or a profit. It should not be run at a loss. Some dealers are satisfied if it breaks even, although there is no reason why the department should not carry overhead and selling commission and be made to show some profit. Aiming at a profit is the best way to avoid a loss.

The Guarantee Plan

Some dealers have found success in the guarantee plan, which works this way: The used car buyer is permitted to get his money back in 7 days if he doesn't like the car, and if he keeps it 30 days service is given. If he asks for his money back it is given before a question is asked, and after the buyer has his money back he is asked what ailed the car. Generally this treatment so impresses him that he buys another car and keeps it.

MOTOR WORLD considers this the best plan, and with these conditions:

a—Used car manager's appraisal must be final.

b—Department should aim at a profit.

c—Be absolutely reliable.

d—Seven-day-money-back plan in whole or in part.

5—DEAL WITH USED CAR DEALER

Under this plan you do not handle the cars yourself. Whenever you have an opportunity to trade, you get in touch with a used car dealer and allow on the car whatever he says he will give for it. This plan may be worked with success, although it does not leave the dealer in as close touch with his trade as does plan No. 4.

6—USED CAR EXCHANGE

A used car exchange is a co-operative used car store operated by a number of dealers. The store is presumed to operate at a profit and one of the principles in the plan is an appraiser. He fixes the prices at which the exchange will buy any used car and every dealer in the plan is supposed to allow in trade whatever figure the appraiser sets.

In order for the plan to work well, the dealers must all stick together, must abide by the decisions of the appraiser and the exchange must be so operated that it does not accumulate a stock of dead cars. Exchange prices must be kept down and the cars must be kept moving.

This is a plan that has been tried out many times without success and is a favorite with dealers who have never tried it. It looks easy but turns out to be quite difficult.

One difficulty is that each dealer, no matter how he may feel when the plan is started, generally discovers before the idea gets very far that he has his own opinions on how his own used car business ought to be operated. There are, however, one or two such exchanges which are said to be working fairly well, but MOTOR WORLD does not believe they have yet been run long enough for it to be said that they are successful. We may add, however, that this plan, if it could be made successful, would be ideal.

The Best Way to Aid the President

By Howard H. Gross

President Universal Military Training League

A FIXED military policy which will protect the nation and strengthen her manhood is the special need of the hour. Each passing day demonstrates this. This league and its sponsors believe that in universal military training lies the nation's chief hope. They therefore urge two things:

First and foremost: Stand behind President Wilson in every way. He is bearing a tremendous burden. Assist him in all emergency measures, whether financial, military or economic.

Second: Use every influence to impress upon our Senators and Representatives in Congress that emergency war measures now pending will not solve our military needs except temporarily. They may carry the country along for the present, but they will not do for the future. The most democratic program as a *fixed military policy for the United States* is that of universal compulsory military training. It treats all alike, makes use of young men before they reach the age where their earning capacity is high and when they are yet unmarried, and gives them 6 months' intensive military training. Then it sends them back to work. These trained youths will form the backbone of a great democratic citizen army. This is the only definite, simple and patriotic plan that will make America safe and ready.

Stand by President Wilson

I earnestly hope that every American will stand by President Wilson and the government officials who, with the President, are bearing a gigantic responsibility. I have just returned from the National Capital, and I know, and sense in a measure, the weight that is taxing our silent and conservative Chief Executive. It would be shameful to see his plans for meeting this crisis defeated. Therefore, as should all citizens, I bespeak general co-operation with President Wilson in these mighty works.

They are emergency measures, as he has said. This universal military training plan is supplementary to the President's emergency measures. It goes further and will last longer. While he is doing all he can do to safely pilot the ship of state through the eddies just ahead I ask all patriotic citizens not only to strengthen his arm in this effort, but to aid the nation as a whole in supplementing the President's labors by the establishment of universal military and naval training.

The benefits resulting from such a democratic plan for raising an army in emergencies cannot be overestimated. The last few weeks have shown how weak and futile other devices have been. The volunteer system is unfair, and because it is so, thousands of young men who are as patriotic and loyal as the best in the land will not offer their services. They have come to realize that the strong, highest types of manhood go forward while the cowards and slackers only too gladly stay at home. The best blood goes to the front while the unpatriotic rejoice in secret in the opportunity to remain safe and sound at home, pile up money, and have a good time.

Volunteer System Is Wrong

Such a false premium upon patriotism is not only disgraceful in a national military program, but it is decidedly uneconomical and wasteful. In nine cases out of ten the slackers are able-bodied, and under proper tutelage would make good soldiers, while the patriotic fellows who rush to the colors are the sort who are needed most to man the commercial and financial craft of the nation. The best brains will go into the ranks as privates and leave the sluggards at home to conduct the nation's affairs. This is fundamentally bad in a democracy.

Selective conscription, no doubt, may be necessary at times, but it never will be popular. Universal military training, on the other hand, is, through its very universality, plain, simple democracy. It says that all having the blessings of our institutions should, in time of peace, contribute their aid to defending these institutions. It says, further, that the untrained soldier is so much cannon fodder, and that the chances of the trained lad returning home in health from war are about three times greater than the untrained boy's.

Therefore, in universal military training, the secret of our general military and naval needs for to-day, to-morrow, and all time is found.

The Universal Military Training League makes special appeal to the people of the country to write their Congressmen to back President Wilson in all his emergency measures, and to eradicate forever the doubt, uncertainty and weaknesses of our present muddled military policy by establishing in law a fixed plan for universal, compulsory military training and service.

Stand by your President and strengthen your nation!

The Motorist Wants 'Em; Sell 'Em to Him

THE pictures on this page are from the stock of the Auto Supply Co., Columbus Circle, New York City. This accessory and supply store began building a clothing department several years ago and now has a thriving trade. It has a manager who devotes his whole time to clothing, hats, caps, gloves and other motoring apparel.

The manager of this company says he believes any dealer in a town of any size at all can make money out of clothing. All that is necessary is that a reasonable stock be installed at first and the growth be made as rapid as possible.

Spring goods must be displayed during the latter half of the winter and fall goods during the early fall in order to get the buying germ implanted long enough before the selling season.



Gentleman's Palm Beach duster, in gray and tan; \$15.



Gentleman's driving coat, made of knit goods in heather, green, brown and tan, \$25.



Gentleman's Alpine hat, made of Kool cloth; \$2.50.



Gentleman's coat, in heather, green, brown and tan; \$30.



Gentleman's coat of olive drab. Convertible collar; \$30. Hat same as round picture at right.



Reinforced driving glove, black or tan, \$3.50.



Gentleman's cap, made in all combinations of checks; \$2.50. Goggles in amber or white lens, \$2.



Chaufeur's suit, made of dark gray sharkskin cloth; \$27.50. Hat, same cloth, \$2.50. Gauntlets, \$3.75.

And They Have a Woman Salesman

SO rapid has been the growth of The Auto Supply Co.'s business in women's motoring apparel that a saleswoman has been engaged to handle this work. While it might be presumed that she would have plenty of idle time, such is not the case. She is busy nearly the whole day caring for the needs of a large clientèle of women who patronize this motor specializing company rather than the department stores or Fifth Avenue shops.



Ladies' silk hat trimmed with straw; chiffon veil; all colors and combinations; \$4.75.



Ladies' silk motor hat in all colors with elastic to grip head; chiffon veils to match; \$10.50.



Tweed motor coat, kimono sleeve, shawl collar; \$57.50. Sport hat, green, gray and blue straw. Price \$5.75.



Wool velour cloth coat with silk fancy collar and cuffs; \$57.50. Hat same as in circle at left.



Pongee dust coat. Green cloth collar; \$40. Pongee racing cap, \$3.50.



Top—Sport hat, green, gray and blue straw; \$5.75.



Lower—Ladies' silk hat, trimmed with straw; fine mesh veil; all colors; \$8.



Ladies' tussah silk coat, rose broadcloth collar; \$47.50. Hat silk trimmed with straw with fine mesh veil; all colors.



Ladies' knit sport coat in gray, tan, mustard, green and blue; \$30.

SCIENTIFIC CONSTRUCTION

GARAGES □ □ □ SHOWROOMS □ □ □ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

One-story and Basement Building, 65x130, on Corner

EDITOR Motor World: We have a plot of ground 65 x 130 ft., on which we propose to erect a two-story garage about 60 x 100 ft., fronting on a main street. The side street has a considerable downward slope toward the rear of the lot. Our idea is to have the first floor on a level with the front street with the basement underneath, which we can enter from the rear.—W. H. Hookway, the Palmer Garage, Easton, Pa.

Answer—We have made your garage the full width of the lot inasmuch as building on 60 ft. of it would have left a 5-ft. strip which never could be employed for any useful purpose. Consequently, it seems better to make the building 65 ft. wide and include this strip. The length of the building is 100 ft. as per your request, because it is possible to expand the length to 130 ft. any time without seriously changing the layout.

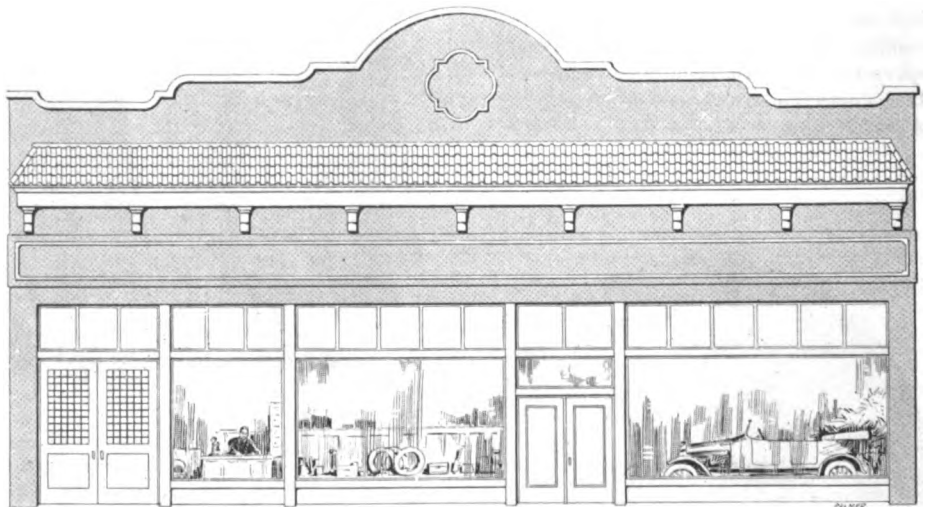
You may object to placing two rows of cars on one side of the aisle and one row on the other, but this arrangement is used successfully in many of the best garages in the country, and has the advantage that more cars may be stored in a given space than if the ordinary arrangement of one row of cars each side of the aisle is used.

Two Stories Above Ground Better

Editor Motor World: Would you construct both stories above ground or use a one-story and basement construction? —T. R. Campbell, New York.

Answer—Unless the plot slopes so that the major portion of the basement is above ground, it is better to build both stories above street level.

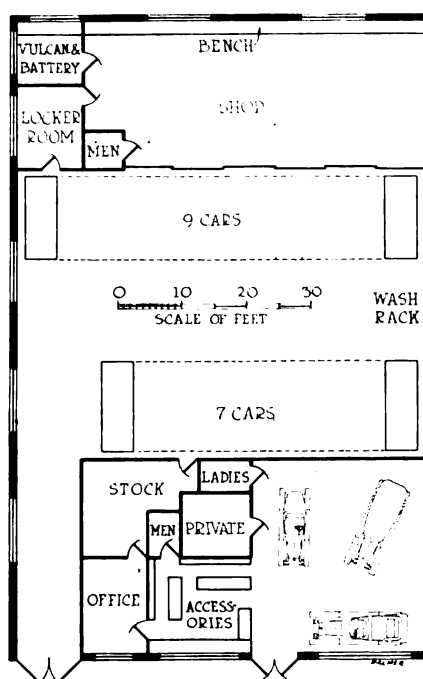
While the cost of excavating may vary from almost nothing up, according to the demand for loose earth and the nature of the soil, as a general rule, it will be no cheaper, if as cheap, to dig a basement as to erect a second floor. But even if it cost considerably more to con-



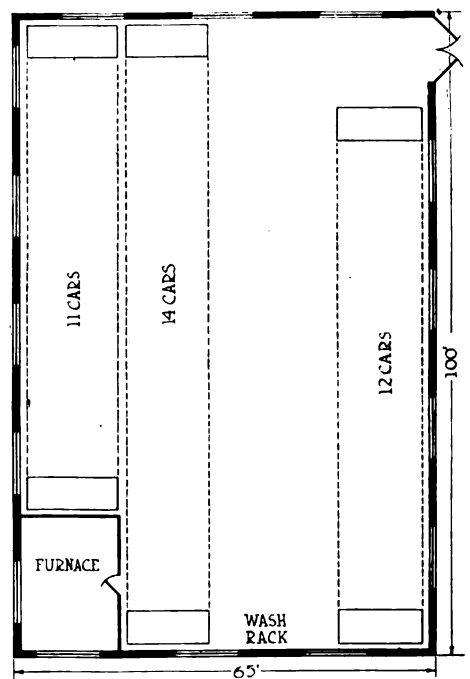
The showroom, accessory store and office present an unbroken front. The entrance to the first floor of the garage is at the left. The entrance to the basement is around the corner and down the hill

struct the second story it would be worth while because the space would be much more salable. Basements are dark and damp and it is impossible to obtain as large rentals from owners as if the space

were above ground. The money which would be saved on the initial investment would soon be more than counterbalanced by the greater rental which could be obtained from the second floor.



Plan of one-story and basement building, with entrance to basement on side street



THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

Getting Dealers' Plates Returned Quickly

Editor Motor World: We have the darndest time getting our license number plates back after we have sold a car, and all the dealers experience the same difficulty. Last summer I had two cases of accidents while my Dealer's plates were on the cars, and while I had proof that the ownership lay with the new purchaser of the car in each case, and I was in no way responsible, still something should be done to make the dear public send the Dealer's number plates back more quickly.

See if you can suggest any kind of legal notice such as the Packard and I are using, copies of which I enclose.

My idea would be to have printed forms bound in a book and every time a customer takes a set of Dealer's number plates he should sign this form. I have so many sets of Dealer's number plates that I have also had to put the individual number on each set, as this is the only way we can keep track of where each set is. By having these bound forms numbered accordingly it will be very easy to keep an accurate record, and immediately recall any set of plates due to come back to us.—John Van Benschoten, Poughkeepsie, N. Y.

VAN BENSCHOTEN'S FORM

Received from John Van Benschoten of Poughkeepsie, N. Y., one set of dealer's license plates No., which are loaned under the following conditions:

That the recipient will make prompt application to the Office of the Secretary of the State for an owner's license and when such plates are procured, that those belonging to John Van Benschoten of Poughkeepsie, N. Y., will be returned immediately.

That John Van Benschoten is not liable or responsible for any damage or claim made on account of accident or collision of any kind and that in the event of such accident or collision John Van Benschoten will be notified immediately and supplied with complete details of same by either the owner or driver of the car.

After a lapse of 10 days in which plates should be obtained from the Secretary of State, it will be illegal and contrary to the State law to use the dealer's license plates, and you will be subject to a fine for so doing. Therefore, you are expected to return the dealer's plates within that period of time.

Accepted under conditions as outlined herein.

.....Owner.

THE PACKARD FORM

.....1917.

Received from the Packard Motor Car Co. of New York one set of manufacturers' license pads which are loaned under the following conditions:

That the recipient will make prompt application to the office of the Secretary of State for an owner's license and when such pads are procured that those belonging to the Packard Motor Car Co. of New York will be returned immediately.

That the Packard Motor Car Co. of New York is not liable or responsible for any damage or claim made on account of accident or collision of any kind and that in the event of such accident or collision the Packard Motor Car Co. of New York will be notified immediately and supplied with complete details of same by either the owner or driver of the car.

After a lapse of 48 hours, in which pads should be obtained from the Secretary of State your account will be charged the amount of \$15 until such time as the license pads are returned.

Accepted under conditions as outlined herein.

.....

Answer.—Your complaint is a common enough one, but nevertheless one which is hard to remedy. The form of receipt for license plates which you enclosed ought to help toward keeping track of where the different sets are, especially if they are bound in book form as you suggest. I think that if the following extract from the New York State law were attached to letters sent to people using the plates after the fifteen days have expired, it might help.

EXTRACT FROM NEW YORK STATE MOTOR VEHICLE LAW

"Upon the sale of a motor vehicle by the manufacturer or dealer, which has been registered by the manufacturer or dealer under this article, the vendee shall be allowed to operate the same upon the public highways for a period of fifteen days after taking possession thereof or until he shall have received his certificate of registration and number plates from the Secretary of State, providing that during such period the motor vehicle shall have attached thereto, in accordance with the provisions hereof, two number plates bearing the registration number of the dealer under which it might previously have been operated, and provided, further, that application for registration shall be made by mail or otherwise before such vehicle shall be so used."

Why not lay in a stock of the application blanks and insist that each person

borrowing a set of your license plates fill out an application blank and leave you a check to cover the fees before you allow them to take away your plates? You might also arrange to have the buyer's new license plates mailed to you, in which event, of course, you could hold the new plates until your own were returned.

Warehouse Is Responsible if Car Is Removed

If a motor car owner leaves his car in a certain warehouse and the warehouseman removes it to another warehouse the latter will be responsible for any loss or damage occasioned by fire. This is the decision on a recent New York case.

A car owner sent an automobile body to a warehouse to be stored. Some time thereafter the warehouseman sent a notice to the car owner advising him that the "business was transferred." Shortly thereafter a fire occurred and the automobile body was destroyed. Before that happened, however, the car owner paid a storage bill sending it to the new address.

The court decided that as the warehouseman had removed the property the loss would fall on him but for the fact that he had sent the notice to the car owner and the latter had paid the bill sending it to the new address, as sending the bill to the new address showed that he had notice of the transfer and did not object to it. *Mandl vs. McKegny*, 162 N. Y. S., p. 900.

Put Orders in Writing

If there is an agreement to put a car into first-class condition, says the New York Supreme Court, and the price is not fixed the car owner cannot deduct from the repairman's bill an amount he may have to pay for further repairs made by another repairman, if the additional repairs are not made necessary by the neglect or omission of the first repair man.

The reason for this, held the court, was that if the first repairman had made the additional repairs he would have been entitled to an additional amount, and the car owner was not injured if his only complaint was that he had to pay that amount to another repairman instead of to the first one. *Geo. Irving Co. vs. Acunto*, 162 N. Y. S., p. 919.

Repairshop Shortcuts

From The Motor World Roadman

(No. 1154) REAR AXLE STAND

Rear axle work is facilitated by the use of a proper stand. The stand illustrated possesses many valuable features. Roughly, it is a T-shaped framework, supporting the axle ends on the cross, and the drive shaft on the end. Compartments are built into the ends, and are used to hold axle tools, and parts. The complete axle may be assembled and tested on this stand. All axle tools should be kept in the stand, ready for use when needed.—E. E. Rhodes, Woodward Tire Repair Co., Detroit, Mich.

(No. 1155) CHASSIS CLEANING

It usually takes some time to clean the mud and grease from a chassis by the scrape and wash method. This time may be reduced by the use of a circular wire brush mounted in a small arbor chucked in a portable electric drill. With this tool, a man can do twice as much cleaning as without it.—K. A. Pullen, West Broadway Garage, New York.

(No. 1156) BENDING BAR

This is a bending bar, for straightening front axles. It has a 5-ft. handle, of 2-in. iron pipe. The bending jaws are brazed to one end. These jaws comprise a U-shaped piece of steel, fitted and brazed to the pipe, and braced by diagonal steel members, also brazed to the pipe, as shown. Several sets of these bending bars may be made, one for connecting rods, and various others for different axles. The jaws could readily be welded to the pipe, if a welding outfit is at hand.—R. H. Brown, Fort Dodge Auto Co., Fort Dodge, Iowa.

(No. 1157) BENCH LOCK

Tools may be most readily stored beneath the bench, but should be locked to prevent theft. A simple method of locking both the tool drawers and storage space, with one lock, is shown. The drawers are hung from the bench top in the usual manner. A hinged door encloses the compartment beneath the bench, and both drawer and compartment are locked by a single Yale lock. The lock is

bolted to the hinged door, and catches against a steel strip fastened to the lower side of the drawer. This strip is so placed that when the lock is set, any attempt to open either drawer or door only wedges the two tighter together. Another feature of this method of tool storage is that the swing door offers a convenient place to hang small tools.—W. D. Seanor, Woodward Tire Repair Co., Detroit.

(No. 1158) SIMPLE CREEPER

This is a simple and durable creeper. It is a platform of boards, held together by three cross pieces, and mounted on six furniture castors. A head rest is formed at one end by inclined short boards, as shown. In addition to the features of being easy to construct, and durable, this creeper is exceptionally low, and does not hold the mechanic tight up to the car. An advisable addition might be made by padding the head rest.—E. E. Rhodes, Woodward Tire Repair Co., Detroit.

(No. 1159) FORD TRANSMISSION BEARING REAMER

When new bushings are replaced in the Ford reverse drum, it is essential that they be scraped or reamed to size. Reaming is easier, but reamers are expensive. A suitable reamer for this purpose may be made from an old slow speed gear from a Ford, in the manner illustrated. The gear is removed from its drum, and ground by hand to the required size. The back edges of the teeth should be given a slight clearance, so that the edges will cut freely, and the chips will not clog. As the gear teeth are case hardened, no further heat treatment is necessary. A cross piece, riveted to the gear flange serves as a handle in doing the work.—W. D. Seanor, Woodward Tire Repair Co., Detroit, Mich.

(No. 1160) ADJUSTABLE PULLER

Most manufacturers are now providing tapped holes in gear and flange faces, for the application of special pullers. The puller illustrated is designed for use in such cases. Instead of single holes for the puller

screws, in the cross bar ends, each screw rests in a slot. This slot permits the screws to be set at any desired distance from the center, and is also wide enough to allow large or small puller screws to be used. The central pressure screw should be about $\frac{7}{8}$ in. in diameter, and long enough to cover a variety of work.—W. D. Seanor, Woodward Tire Repair Co., Detroit, Mich.

(No. 1161) SIMPLE HAND VISE

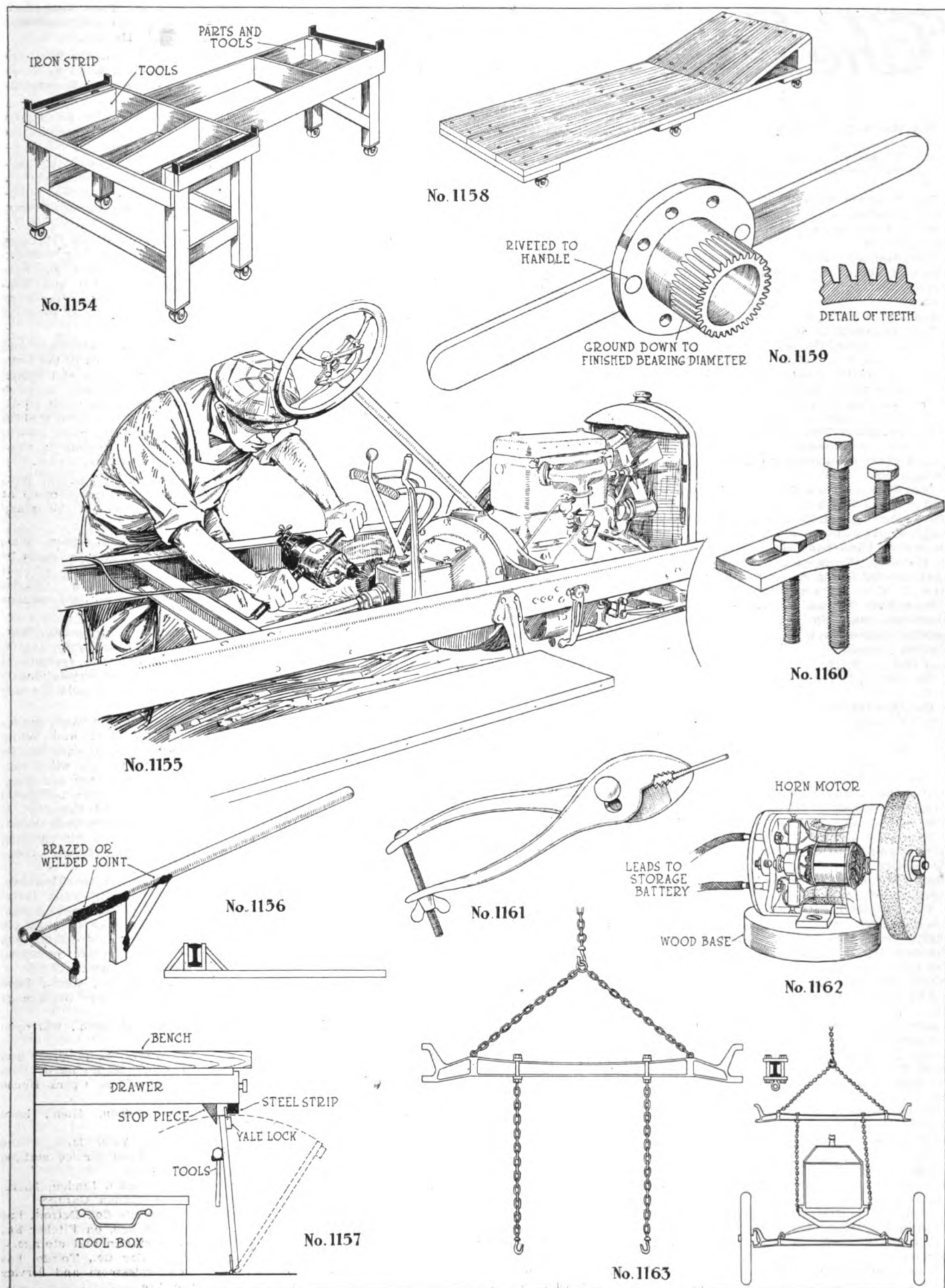
A pair of combination pliers may be made into an excellent hand vise in the following manner. First drill through each end of the handles in the manner shown. Then pass a $\frac{1}{4}$ -in. machine screw of sufficient length to allow the pliers to open, and fit a thumb screw to it in the manner shown. By this arrangement, any small work or tool may be securely held, as in the ordinary hand vise.—Elvin Lawler, Gordon, Wis.

(No. 1162) PORTABLE GRINDER

Junk parts were used to construct this portable grinder. The motor used is the motor of an old Newtowne horn, and is mounted on the base after the removal of the horn and horn sounding mechanism. A small emery wheel is mounted directly on the end of the motor shaft as shown. The current is derived from either a 6- or 12-volt storage battery. The former gives the motor sufficient power for most grinding jobs, the latter enough to drive the wheel up to its capacity. When used as a bench grinder, a clamp may be used to hold it to the bench, or the grinder is small enough to be carried directly to the job.—W. D. Seanor, Woodward Tire Repair Co., Detroit, Mich.

(No. 1163) FORD LIFTING RIG

An excellent lifting rig for the front end of a Ford may be made from an old Ford front axle. The chains attached to the block are fastened to eyes bolted in the radius rod holed in the axle. The car supporting chains are attached to the axle in the manner shown, and carry hooks that catch the front of the car.—Swaney Motor Car Co., Fort Dodge, Iowa.



The RETAIL NEWS

EAST

The Moline-Knight Sales Co., Philadelphia, has changed its name to the Harding Corp., and will handle the Monroe car exclusively. L. M. Harding remains president and treasurer.

The Brighton Garage, 16th and Ingersoll Sts., Philadelphia, is building a two-story steel and concrete addition, 98 x 105, costing about \$40,000.

The Standard Motor Car Co., 662 North Broad St., Philadelphia, will handle the Harroun in this territory on a five-year contract. The company is erecting a new building at 668-70 North Broad St.

The Philadelphia Branch of the Polack Tyre & Rubber Co. has removed to 814 North Broad St., and is now in charge of James A. Harris, formerly of the Washington branch of the company.

The Doughty Tire Co., Providence, R. I., has opened a store at 115 Wickenden St.

The Broadway Tire Exchange Inc., 101-107 Broadway, Providence, has opened its enlarged quarters to accommodate dealers and garagemen.

The Pope Hartford Company, Boston, has just changed its name to the Mitchell-Lucas Motor Car Co. It handles the Mitchell line and the change was made to avoid confusion. George S. Dodd has been named president; F. H. Lucas, vice-president and general manager; Ashley S. Brown, treasurer, and William C. Masters, sales manager.

New York Storage Battery Co., 306 W. 133rd St., New York, has been appointed service station for the Philadelphia Storage Battery Company.

SOUTH

W. Howard Douglass, Nashville, Tenn., for five years with the Nashville Motor Sales Co., has joined the force of the Chandler Sales & Service Co.

Mell Venable, Atlanta, Ga., who was a Haynes car pioneer in this section, but recently has been traveling for other lines, has joined the staff of the Haynes Automobile Co.

Thomas H. White, Jr., Nashville, Tenn., has resigned from the service of the Newsom Auto Tire Vulcanizing Co. and has been made sales manager of the Hayes Auto Co., Allen distributors.

The Lexington Motors Co., New Orleans, La., has been organized to distribute Lexington cars. George Sears, Lexington sales manager for the Gulf States Auto Co., will be sales manager for the new company, which will sell only Lexington cars.

The Dennis Auto Supply Co., Richmond, Va., has taken possession of a specially equipped salesroom at Madison and Broad Sts.

W. A. Asman, Jr., of Detroit, and N. O. McDuffie, Wilmington, N. C., have joined the staff of the Alrop Motors Co., Richmond, Va.

E. L. Taylor & Co., Richmond, Va., Marathon tire distributors, are building a specially designed service building at Ninth & Cary Sts.

The Lindner Motor Sales Co., Birmingham, Ala., has been named state distributor for the Stutz.

D. Moody Sheftall, Nashville, Tenn., a fire insurance veteran, has engaged with King Sparks of that city to sell Smith Form-a-Truck.

The Bernin Automobile Co., New Orleans, La., will sell the Gram-Berstein trucks.

The Empire Automobile Co., Atlanta, Ga., distributing branch has been opened at 373 Peachtree St. by E. Z. Jones, district sales manager.

The Prichard-Orr Sales Co., East Point, Ga., has contracted for a new building to double the space now occupied. An upholstery and painting department will be added.

The Capital City Auto Co., Atlanta, Ga., has been organized as distributor of Chevrolets. B. W. Holt is president and W. T. Rawlings, secretary and treasurer.

Voyle Brothers, 207 E. Main St., Gainesville, Fla., have been appointed as service station by the Philadelphia Storage Battery Company.

MIDDLE WEST

The Roe Automobile Co., Madison, Wis., has established a branch in Oregon, Wis., with headquarters at the Custer & Hanson garage. The company is Overland distributor.

Eisen & Phillips, 110 South Second Street, La Crosse, Wis., will award contracts at once for the erection of a new two-story fireproof garage, 100 x 140, to cost about \$30,000.

The Alliance Investment Co., 604 Broadway, Milwaukee, has awarded contracts for the erection of a one-story brick and steel garage and repairshop, 30 x 117, on Sixth Avenue and Lapham Street, and a similar structure on First Avenue and Mineral Street, Milwaukee, at a cost of \$8,000 each.

The Washington Street Garage, Green Bay, Wis., owned and operated by Noble Smith, was gutted by fire on April 9 with a loss of \$25,000. Twenty-one cars were badly damaged. The garage will be rebuilt.

Frank and Ed. Fellhoefer, Valmy, near Sturgeon Bay, Wis., are building and equipping a garage and repairshop, 35 x 60, to be ready May 15. The owners are Dodge dealers.

Frank C. Ulrich, Phillips, Wis., has leased the former Phillips Garage building on Avon Avenue and will conduct an exclusive motor car repair and service station. A tire repairshop will be operated in the same building by Conrad Bros.

The Sussex Garage Co., Sussex, Waukesha County, Wis., has incorporated its business under the same style, with an authorized capital stock of \$5,000. The owners are John P. Stier, William Brown, William J. Smith, W. F. Stuewe and August Manke.

Frank Sheremith, Hartland, Wis., has leased his garage and repairship to James and Thomas Wilson, Hartford, Wis., who will take possession May 1. Wilson Bros. have been connected with the Kissel factory at Hartford for several years. They have been appointed Saxon dealers for Waukesha County. Clem W. Rea will be sales manager.

The Ellis Motor Co., Hudson, Wis., is now owned solely by Robert Ellis, who purchased the interest of Christ. Casanova, and takes over the exclusive management.

Hazen Bros., Wauzeka, Wis., will erect a new garage and repairshop, costing about \$7,500 complete, on the Atchison estate in Wauzeka.

William Theune, Cedar Grove, Wis., has sold his garage and repairshop in order to join Co. C, Second Wisconsin Infantry, Sheboygan, Wis., as a private.

The Oltman-Larson Auto Co., Ellsworth, Wis., has broken ground for its new garage and repairshop building, to be 50 x 115, and cost \$8,000 with equipment.

Harry Norton and Elmer Peck, Waterford, Wis., are erecting a garage and repairshop for occupancy by Martin Hanson.

The Murphy Garage, Fox Lake, Wis., has been purchased from W. E. Murphy by W. D. Mahoney. Charles Ball has been engaged as superintendent.

William Gustman, Greenleaf, Brown County, Wis., opened his new garage, accessory store and repairshop on April 16.

The Neenah Auto & Implement Co., Neenah, Wis., held the formal opening of its new garage, warehouse and salesroom building on North Church Street on Friday, April 13.

The Jacobsen & Austin Auto Co., 207 East Washington Avenue, Madison, Wis., Jeffery, Saxon and Detroit electric dealer, has purchased a site at Butler Street and East Washington Avenue for a new three-story garage and service building, to be 80 x 112 and cost more than \$50,000.

Julius Andrae & Sons Co., Broadway and Michigan Street, Milwaukee, one of the largest jobbing and retail accessory and supply concerns in the northwest, and a large manufacturer and dealer in electrical goods, has increased its capital stock from \$100,000 to \$500,000, to accommodate the rapid growth of its business. F. Terry Andrae is vice-president and general manager.

The Plymouth Auto Co., Plymouth, Wis., will build a new garage and repairshop at Caroline and Main Streets, to be ready June 1.

The Yellowstone Garage, Waupaca, Wis., on the Yellowstone trail, has been leased by Dayton Baldwin, who with William Wolcott is Oldsmobile and Oakland dealer. Charles Johnson, owner of the garage, will manage the repairshop.

The Valley Inn Garage Co., Neenah, Wis., owned by L. H. Bleecker and John Ingfer, has awarded contracts for the erection of a \$25,000 garage building and service station on East Wisconsin Avenue, opposite the new Valley Inn Hotel.

The Thom Auto Co., Oshkosh, Wis., Studebaker, Dodge, Stearns-Knight and White truck dealer, has taken occupancy of its new garage addition, 109 x 112, which enlarged its holdings to a two-story and basement structure, 165 x 112. The northwest corner of the first floor and basement is occupied under lease by the Oshkosh branch of the Fisk Tire & Rubber Co. The building has accommodations for the storage of approximately 700 cars in all.

The Eslein Sheet Metal Works, Milwaukee, a large producer of portable sheet metal garages and other galvanized sheet goods, has increased its capital stock from \$15,000 to \$30,000 because the former capital was inadequate to care for the greatly increased volume of business now in hand.

Bryan & Shauli, Charlotte, Mich., have opened a new garage and have the agency for Chevrolet and Briscoe.

Green Brothers, Pontiac, Mich., will open a garage.

C. W. and Louis Shaw, A. T. Miller and H. T. Winslow, Pontiac, Mich., have taken over the management of the Opera House Garage.

Atkins and Lark, Albion, Mich., have opened a garage.

James Cogley Sons, Yale, Mich., have opened a garage and Ford service station, with the agency for Ford.

Joe Black and Ray Welch, Linden, Mich., have taken over the Linden Garage.

The Michigan Oldsmobile Co., Detroit, has purchased the Elite Garage, on Pitcher St., for use as a service station and storage.

The Grasser Motor Car Co., Toledo, has moved into its new salesroom and service station on Madison Ave.

The Universal Garage, Toledo, has been purchased by F. B. Smalley and will be called the Smalley Garage.

V. M. Elmore & Son, Tuscola, Ill., have been appointed service station for the Philadelphia Storage Battery Co.

SOUTHWEST

H. G. Warwick, Argonia, Kan., has bought the Argonia Garage.

Labbe Bros., Axtell, Kan., Reo dealers, held their formal opening.

George L. Woodbury, Clay Center, Kan., is erecting a new garage.

Ellisberry & Yingling Bros., El Dorado, Kan., are now located in their new modern two-story brick building at 126 West Fourth Street.

W. W. Frager, Goff, Kan., is erecting a garage.

The Harveyville Motor Car Co., Harveyville, Kan., has opened.

Huffman & Strunk, Herington, Kan., have leased the automobile repair department of Wm. H. Liggett's garage.

Al Jacobs, Hiawatha, Kan., has purchased an interest in Clarence Gerber's service station.

Frank Dixon, Kinsley, Kan., has bought the Lancaster & Bitner garage.

Charles E. Keating, Leavenworth, Kan., will open a repairshop.

S. G. Simpson, Parsons, Kan., Allen and Velle dealer, is moving into a brick with stucco front 50 x 120 garage on Belmont St.

A. A. Cameron, Burr Oak, Kan., has opened a garage.

Goodeagle Brothers, Columbus, Kan., are building a brick garage at a cost of \$15,000.

Ed Livesey, Concordia, Kan., Ford dealer, will open the new building to be erected for salesroom and service station.

H. E. Lyman, Clay Center, Kan., is opening a service station, 52 x 90.

Col. Short and Chas. Norris, Clifton, Kan., are opening an automobile service station.

S. W. Engler, Clay Center, Kan., is remodeling his garage.

C. A. Chandler, Esbon, Kan., has sold his interest in the Main Street Garage to his partner, A. C. Florell.

F. S. Beberstein, Home, Kan., will erect a new garage.

The Harveyville Motor Car Co., Harveyville, Kan., opened recently.

Simmons & Barnes, Independence, Kan., are building a garage.

Morris & Burtnett, Iola, Kan., have opened a repairshop.

H. C. Jones, Larned, Kan., will open an Exide battery service station.

E. I. King & Co., Logan, Kan., dealers in hardware, have bought the Grant Ford Garage, and will remodel and improve.

Glenn Morris, Alanthus Grove, Mo., has opened a garage and repairshop.

Leslie Fawver, Carsville, Mo., has purchased the interests of George Marble and Charles Williamson in the West Side Garage and will continue the business.

Smith & Speechly, Chilhowee, Mo., are building a garage.

Fred Moentman, Norborne, Mo., is erecting a garage.

Silaby & Murphy, Flat River, Mo., Dort dealers, are erecting a garage.

James Taylor, Holden, Mo., has the contract for building the West garage.

Gladish Bros., Higginsville, Mo., will occupy a new brick garage 50 x 140.

Fred T. and Carl K. Mozill, Marshall, Mo., have opened a repairshop and garage.

The Neustadt Auto & Supply Co., 3200 Locust St., St. Louis, Mo., has been taken over by T. J. Mylet, president; Edward G. Rolwing, vice-president; J. O. Tinsley, secretary and treasurer.

James Cochran, Burlington, Kan., Ford dealer, is erecting a new building.

L. Kael, Belleville, Kan., has opened the Meridian Garage.

F. A. Lewis, Colby, Kan., is erecting a new garage.

W. T. Senior, Fort Scott, Kan., has sold his interest in the garage at Jefferson Highway to F. L. Johnson, his partner.

C. A. Singleton, Fredonia, Kan., will erect a service station.

W. S. Hamby, Hutchinson, Kan., manager of the Moon Motor Co., is now in his new location, 14-16 South Walnut.

The Nagelvoort-Stearns Cadillac Co., Hutchinson, Kan., will move from 116 South Main St. to the Salt City Business College block.

Charles Pierce, Latham, Kan., is erecting a garage.

W. O. Bussinger, Lebanon, Kan., may enlarge the Main St. Garage.

Rooney, Grant & Parmenter, Cabool, Mo., have sold the City Garage to the Garner Brothers, Ed and Noah.

W. A. Matlugin, Doniphan, Mo., is erecting a garage.

George Wendell, Ironton, Mo., is opening the Ozark Garage.

Frank Putnam, Knob Noster, Mo., may open a garage.

Poland & Hawkins, Nevada, Mo., have opened a garage.

Harvey Gilbert, Osceola, Mo., has opened a supply and accessory business.

C. E. Delevan, St. Joseph, Mo., is rebuilding the garage which was recently destroyed by fire. The new one will cost \$3500.

The O. K. Repair Shop, Slater, Mo., which includes a vulcanizing and repair equipment, is moving to the Jenkins feed yard. The owners, Slater & Ancell, will in the future be in partnership with J. E. Clayton.

Cobb & Phelps, Salisbury, Mo., will open a garage.

Duemler Motor Co., Springfield, Mo., will open soon. The owners are R. P. McCall and O. S. Duemler.

Holloway Bros., Warsaw, Mo., have converted their livery barn into a garage.

A. Karrer, Albany, Mo., has moved to his new location in the Chenoweth Building.

The Edson Motor Co., Bethany, Mo., has built an annex in which it will have a storage battery service station.

E. G. Thompson, Cameron, Mo., has bought the O. K. Garage from B. C. Bennett.

B. F. Brokhausen, California, Mo., has erected a 105 x 105 garage.

L. Wagner, Excelsior Springs, Mo., has opened the Excelsior Electric & Machine Co. for electric motors and starters.

The Brooks Brothers, Greenville, Mo., have opened a garage.

The Rice-Lilly Garage, Jasper, Mo., is being enlarged by a 40 x 60 addition. The front will be of pressed brick.

Lin Howell and Joe Hall, Kehoka, Mo., will open a garage.

M. A. King, Marshfield, Mo., is building a 20 x 40 addition to his garage.

W. E. Huff, Novinger, Mo., is remodeling his store building into a garage.

D. S. Wiles, Nevada, Mo., has sold his automobile business to a Springfield firm.

John L. Gregory and L. A. Zimmerman, Plattsburg, Mo., will remodel the Eaton Garage into a first class garage. It will have concrete floors, plate glass front and many other improvements.

Joe Taylor, Russellville, Mo., is erecting a new garage.

Arthur Kerth, St. Louis, is remodeling the garage.

The Motorists' Auto Supply Co., St. Louis, is another addition to automobile row.

Jones Riggs, Winston, Mo., has closed his garage.

C. E. McCaskey, Winston, Mo., will open a garage.

Ezra Stoutzenberger & Son, Raymond, Mo., have put in a garage in what was formerly their motion picture theater.

A. R. Price, Stockton, Mo., may erect a garage.

L. P. Robinson and Gilbert Garvin, Trenton, Mo., have traded 180 acres of land for the garage of Kelley Fisher.

J. A. Amos, Blackwell, Okla., will erect a 50 x 140 garage.

W. T. Jones & Sons, Collinsville, Okla., have opened a new garage.

Woodrum & Fournay, Castle, Okla., have bought White Bros.' garage.

The Frederick Hardware Co., Frederick, Okla., is in its new building and will carry a large line of automobile casings, tires, lights and the many necessary accessories.

Caddy & Davidson and F. A. Bateman, Hooker, Okla., have taken over the interest of J. W. Wallace in the Overland Garage.

The Hall Brothers, Oklahoma City, Okla., have opened a garage.

Adam Rush and Sam Brickman, Okeena, Okla., Dodge dealers, will open a garage in the Schubert Building.

Mrs. Miles, Waynoka, Okla., who recently purchased the Stark & Skilling garage, has sold it to Elmer Bixler.

B. H. McAhren, Globe, Ariz., manager of the Apache Trail Auto Co., has moved the business to larger quarters in the Mitchell Bldg.

William Frahm and George Corner, Blue Hill, Neb., are building a 48 x 129 garage.

Robert Kregel, Nebraska City, Neb., will erect a 48 x 130 garage.

Frank L. Brown, Trenton, Neb., is erecting a brick garage, 50 x 140.

O. A. Tiroff, Jr., Austin, Tex., has moved his automobile paint shop from 1110 West 10th St. to the new Cullen & Casell Garage, E. 8th.

Austin Sales Co., Austin, Tex., was damaged by fire to the extent of \$20,000 loss, all covered by insurance.

The Galvez Service Station, Galveston, Tex., at 1807 Market St., was recently badly damaged by fire.

T. E. Linn, Port Arthur, Tex., is erecting a \$20,000 garage.

Charles Neblett, Stephenville, Tex., is erecting a steel and concrete garage.

A. F. Norton has sold his interest in the Velle agency, Kansas City, the Norton Motor Co. being succeeded by the Randel Motor Co., which already has offices at Tulsa and Wichita for Velle distribution. Norton will have charge of the Kansas City distributing district and of Kansas City retail sales in the Randel company. The Randel Motor Co. will make Kansas City its headquarters for its distribution of Velles; H. O. Randel, president. The Norton company had no connection with the former Kansas City Velle Co. Mr. Norton's occupation with the reorganization of the company made necessary his resignation from the presidency of the Kansas City Motor Car Dealers' Association, his term expiring in three months.

The Howard & Murphy Motor Co., Kansas City, Hupmobile distributors, will soon occupy a new building 120 x 55, an extension to the rear through to Oak St. of its present two-story building at 1819 McGee St. The new building will be for used car and service departments. A paint shop and larger stockroom, where full line of parts will be carried, will be installed on the second floor of the present building.

Ed Shiney, McCracken, Kan., is erecting a garage.

C. L. Ward, Narka, Kan., is erecting a repairshop.

Leonard Gurtler, Omaha, Kan., has bought the repair and accessory department of the R. J. Cornelius Overland Garage.

F. H. Ormsbee & Co., Smith Center, Kan., have purchased the repairshop of G. H. Rogers.

Jess R. Truitt, Wilson, Kan., has opened a tire repairshop.

Oliver Wheeler, Fairfax, Okla., will open a garage.

The Chapman Sales Co., Parsons, Kan., has leased for 5 years the new building being erected on Broadway.

John Huddelson, Powhattan, Kan., is building an 80 x 50 garage.

NORTHWEST

Seigenhagel & Bowman, Lehr, N. D., are building a garage.

Swanson Bros., Pillager, Minn., have begun work on a garage.

Madsen & Sulzie, Harvey, N. D., have bought the Huff & Renfrew garage.

Bird Bollman, Max, N. D., has bought the A. A. Zethren Ford garage.

Richards & Clark, Huron, S. D., bought the Bowe garage.

The Foreston Auto Co., Foreston, Minn., is building an addition to its garage.

Thomas Bros., Yankton, S. D., bought the von Donselaar garage.

Theodore Thompson, Thief River Falls, Minn., has bought an interest in Motor Inn.

S. Johnson & Son, Houston, Minn., have opened a new garage.

William McGowan Garage, Fergus Falls, Minn., is completed and ready to open.

Murdo Auto Co., Murdo, S. D., is erecting an addition, 24 x 60.

B. R. Iverson, Dunn Center, N. D., is building a garage.

Tloga Motor Co., Tloga, N. D., will enlarge its repairshop.

Forstner Bros., Madelia, Minn., are erecting a \$12,000 garage of brick, 60 x 140.

Emil Tleszen, Retah, Mont., will open a garage.

O. A. Olson, Watkins, Minn., has sold his garage interests to Otto Naegle of Minneapolis.

Wright & Munson, Dooley, Mont., have opened their new garage.

Walter Dougherty, Edinburg, N. D., will open a garage and repairshop.

Lahr Motor Co., Bismarck, N. D., will establish an Overland branch at Mandan, N. D.

Richardton Motor Co., Dickinson, N. D., will lease a garage to be erected by Joseph Kilzer, 50x100.

L. M. Steinson, Wood, S. D., has bought a half interest in the Wood garage. He is from Bonesteel, S. D.

C. T. Nelson & Son, Breman, N. D., will build a large garage.

Ole Viken, Halliday, N. D., will erect a garage, 60x100.

Hansen & Son, Willow City, N. D., has begun work on a new garage.

Dressler Hardware Co., Bruce, Wis., which has bought out Zemke & Lippert, will carry a line of accessories. The firm is O. W. Dressler, Minneapolis, and Fred Dressler, Hayward, Wis.

Jones & Westra, Poplar, Mont., sold their garage and machine shop to J. J. Schumacher and Vic Hillstrom of Minneapolis.

The Banks Garage, Grace City, N. D., has been opened by C. J. Sutter of Detroit, Minn.

E. A. Anderson, White Rock, S. D., has bought the White Rock garage.

Fred Voelsch, Hartford, S. D., is building a large garage.

Elliott Holbert Co., La Moure, N. D., building an automobile warehouse, 20x40.

George F. Miller, Annandale, Minn., has opened a new garage.

C. L. Holt, Plaza, N. D., is erecting a garage.

Anton Frederick, Bronson, Minn., is erecting a garage, 48x80.

Alfred Bocker, Hubbard, Iowa, has sold his interest in the Pief & Bocker Garage to his partner's wife.

Elmer Richardson, Knierim, Iowa, has sold his garage to Albert Ballstadt of Rockwell City, Iowa.

Dewey Rhiner, Miller, Iowa, has opened a garage.

Thayer Vincent, Onawa, Iowa, has sold the Main Garage to John Jenkins, Rosalie, Neb.

H. N. Gronwald, Radcliffe, Iowa, has bought the Radcliffe Garage.

J. A. Darrell, Winterset, Iowa, has rented the Tassell Building at Stuart, Iowa, and opened a repairshop.

Gilpatrick & Mead, Helena, Mont., operating a repair and machine shop in connection with the Central Garage, have installed a cylinder grinding machine, the first of its kind to be installed in the State. The shop also has installed a modern carbon burner, and will make a specialty of minute service in this line.

Mogaard Brothers, Glasgow, Mont., plan construction of a garage adjoining their hardware store. Concern will specialize in the sale of accessories and sale and repair of automobiles.

The Iron Front Garage, Helena, Mont., recently added an electrical hospital as a feature of its garage in Helena, to accommodate all makes of automobiles. C. G. Hurlbert and W. G. Kirscher, owners of the Iron Front, also operate the Central Garage at Townsend, Mont.

MOUNTAIN

Herman Lane, Sandpoint, Idaho, plans erection of garage, 50 x 142, in that city. Structure will be of brick, and will be occupied by Al Filson, agent for Dodge, Saxon, Maxwell and Chevrolet cars.

Triet Auto & Garage Co., Pocatello, Idaho, will build addition to its present garage on West Center Street, to be used for display purposes. Structure will be 30 x 45 ft., and will house complete line of accessories.

COAST

J. W. Leavitt & Co., San Francisco, have broken ground for a new \$60,000 building on Van Ness Avenue. It is being erected on a piece of the famous Spreckles property, and will adjoin the Spreckles Mansion known for many years as San Francisco's million-dollar landmark.

Herbert Sieler, Spokane, has purchased an interest in the Sieler Auto Co. with his brother. The company is dealer for the Case and Allen.

W. W. Morris, general manager Tacoma Motor Co., Tacoma, plans construction of a body-building plant in Tacoma, the first plant of its kind in that city. Plant will probably be located in the Motor Building.

M. S. Brigham of the M. S. Brigham Motor Car Co., Tacoma, western Washington distributor for the Scripps-Booth and Cadillac, has opened a service station at 720 Pacific Avenue, in charge of W. A. Carroll, until recently in charge of service work in Tacoma on these two cars. Service station will operate independently of the Motor Car Co. Brigham has agencies in Aberdeen, Bellingham, and several other cities in the State.

Wentworth & Irwin, Portland, Ore., formerly the Columbia Carriage & Auto Works, have taken over the agency for the State of Oregon for the Doane truck, manufactured in San Francisco.

The Portland Motor Car Co., Portland, Ore., has recently taken over the agency for the Nash line, and two carloads of these machines are now en route to Portland.

Harry L. Johnson has opened Johnson's Garage at 805-07 Pacific Avenue, Tacoma, Wash. Building has frontage of 50 ft. and depth of 120 ft.; two entrances are provided, one on Pacific Avenue and other on Court "A." Garage is equipped with a yard for fair-weather repairs, ample space for storing cars, and modern machinery for repairing cars. Another feature is the laundry department, and a complete line of accessories and supplies is carried. Until recently Johnson was head of the service department of the Maxwell agency in Tacoma.

Broe's Garage, Arlington, Wash., has recently completed installation of new 20-in. swing lathe, together with considerable other equipment.

The Inter-State Auto Co., Spokane, a distributor of Velie and Inter-State, has leased the garage at 1313 First Avenue, now occupied by the Fodick Auto Co. The latter will move to its new garage under construction on Third Avenue, near Wall.

The Fancher-Larson Automobile Co., Spokane, has been incorporated for \$20,000, with John A. Fancher president and D. N. Larson vice-president. Company will maintain salesroom and service station in Spokane, and will represent Paige and National cars.

The Portland Motor Car Co., Portland, Ore., representing the Packard and Nash, will erect a \$15,000 salesroom and service station at Tenth and Burnside Streets. Building will be one story, of white pressed brick. Cameron Squires is president of the concern.

J. H. Benson, Republic, Wash., Maxwell representative, is having model salesroom and repairshop fitted up in the Beckett Garage. An addition will be built in the early spring, to be of concrete, and will give quarters 50 x 75 ft. Benson will keep full supply of accessories, and has brought Adam Bullis from Spokane to have charge of repair department.

North Pacific Oakland Co., Seattle, Northwest Oakland distributor, has recently moved to commodious three-story structure at the corner of Twelfth Avenue and East Pike Street. Showroom occupies first floor, with general offices in the rear, and service garage in section back of the offices. Building is concrete.

W. M. Immel of the C. & C. Oil & Fuel Co., Spokane, Wash., has leased site on Monroe Street, and will build a gasoline and oil service station for automobiles.

H. L. Patchen and F. X. Wilson have opened a salesroom and service station at 2816 Rucker Avenue, Everett, Wash., representing the Mets.

M. W. Morris, general manager of the Motor Building, Tacoma, Wash., has recently added another unit of service, a battery station.

Portland Motor Car Co., Portland, Ore., distributors of Packard and Nash lines, has completed arrangements for construction of a new home at Tenth and Burnside Streets. Cameron Squires is president and manager of the company.

Broadway Auto Co., Seattle, will hereafter be under the management of O. L. Willett and J. C. Garner, who will distribute the Detroit car in the counties of western Washington and also the Chalmers line.

The City Vulcanizing Shop, Seattle, has been opened at 805 East Pike Street by A. T. Mapson. A stock of Interlock reliners has been added.

The Chilcott-Nash Motor Co., Seattle, was recently organized to handle the distribution on a wholesale basis of Jeffery pleasure cars and trucks in five States in the Northwest. W. K. Chilcott, who heads the new concern, was until recently sales manager of the General Motors Truck Co.

War Has Little Effect on Motor Car Business

Sales Hold Up Generally—Some Falling Off in Cities—Western Farmers Buying Strongly

NEW YORK, April 23—The war has not materially affected the business of motor car dealers in any section of the United States, according to special reports made by Motor World's staff of correspondents.

In some instances the war has been given as an excuse for not buying, but the sentiment of dealers seems to be that this is only a stock excuse, and that were the country not at war some other excuse would be given.

As a general rule, retail sales are holding up well and are equal to and from 50 to 100 per cent in advance of sales at this time a year ago.

Sales of tires and accessories show no depreciation whatsoever, and there are indications in several sections that car owners are buying tires with the expectation that there will be an increase in price.

In isolated instances there are reports that sales are slacking up in the high priced lines, that prospective buyers of high priced cars are buying cheaper vehicles, that old cars are being overhauled and used another year, and that certain trades and professions are holding off temporarily, but this condition is not general and trade throughout the country is good.

Advertising in the daily newspapers has not fallen off; if anything, it is increasing and dealers seem to be proceeding with the expectation that there will be no permanent slump. When any slowing up is reported the dealers state that it is only temporary and that the entrance of the country into war has given a stability to a hitherto unsettled condition and has, if anything, made business better.

Throughout the large farming areas of the United States the farmers are buying heavily. There is no report whatsoever that buying has fallen off in this class.

Washington Sales Ahead

WASHINGTON, D. C., April 19—With Washington as the storm center of the big war movement, dealers are finding no diminution in sales at this time as compared with the same period of last year. Interviews with nearly two dozen dealers brought out the fact that sales for the last two months were approximately 10 per cent greater than they were for the same period last year, and the opinion is generally expressed among the dealers that the sales season is going to be the greatest Washington has ever known.

Accessory dealers are noting a substantial improvement in sales. The opening of the warm season has sent droves of customers to the stores for new equipment. One of the largest accessory dealers here said that his sales this

month over those of the same month last year were nearly 25 per cent greater.

Bridgeport Prospects Bright

BRIDGEPORT, April 21—War is having no detrimental effect on sales of cars and accessories in this city. Bridgeport, being the munition center of New England, is enjoying the greatest era of prosperity in its history. Sales for the first three months of this year show an increase of over 14 per cent over the corresponding months of 1916. Practically every dealer in Bridgeport is confident that the season of 1917 will be a banner one. As a result of the increased sales of cars the accessory field is reaping a proportionate benefit, and dealers feel that they have no reason to complain on account of present war conditions.

Other Trade Centers

Denver—Some dealers cite gains of 25 to 100 per cent over a year ago and it is predicted that the 1917 total will far exceed that of 1916. The MacFarland Auto Co. sold 311 Buicks during the first three months of this year as against 231 for the same period last year, and 138 thus far this month as against 92 for all of April, 1916. Rural dealers are demanding cars and truck sales are good. Tom Botterill sold 100 Hudson and 130 Dodges thus far this year as compared with 30 and 72, respectively, for the same period a year ago. Maxwell sales are about double those of 1916 and no dealer reports a slump. While the business of the Denver Auto Goods Co. has slowed up slightly during the last two weeks, it is still far ahead of 1916. The Foster Auto Supply Co., Quinn & McGill Motor Supply Co. and the Auto Equipment Co. also report gains.

Reno, Nev.—Sales here have been heavy. As a general rule the dealers and distributors are more concerned about shipments of cars than they are about sales.

Louisville, Ky.—In spite of the war the demand for cars continues unabated. The majority of dealers and distributors report business during the past two weeks 50 per cent better than during the same period in 1916. When the war is given as an excuse it is not taken seriously by the dealers.

Baltimore—Accessory and tire houses never were busier and cars under \$1,000 have felt no change in business, but in the field above \$1,000 the past days has been quite a reverse. The opinion is expressed that people with money are inclined to be careful but that the condition will pass within a few weeks. Even in the rural sections the same condition prevails. One reason for a slack-up in sales is that dealers are becoming more sane on the trading question and are not so keen to make large allowances. Many owners are buying extra tires so as to be on the safe side.

Savannah—The majority of dealers state the war has played havoc with car sales, although the condition is not expected to last very long. Necessary accessories are being purchased, but those in the luxury class are not selling so rapidly. The dealers, however, are optimistic and believe that as the weather and roads improve business will again assume its high level.

Philadelphia—The motor car trade is going on as quietly as if no declaration of war had been made. Sales have in most cases increased and prospects are good. The Overland Motor Co.'s large winter stock is rapidly decreasing. In April, 1916, this company delivered 496 cars; this month it expects to sell 600. Sales Manager Bayne, of the Chalmers company, said that the declaration of war had settled conditions and

that business is better now than before the declaration. Studebaker business has fallen off slightly. William H. Egar, of the Mitchell, says that engineers, superintendents and munitions men are buying heavily. W. G. Brooks, Packard sales manager, says business is greater than during 1916. He just returned from the factory, where he met Pacific Coast dealers, and states that they were optimistic and said business is good.

Hartford—The principal dealers are going right along as if nothing had ever happened. They have assumed an aggressive attitude and will not admit a slump until they cannot avoid it. Thus far they have enjoyed a very prosperous business. James H. Whaley, Maxwell and King, said there was a slight let-up at the beginning but that it has passed away. W. H. Vinal, Reo sales manager, maintains that the war is a fictitious excuse and that his company has felt no bad effects.

Boston—Motor car sales have slowed up a bit, truck sales have increased and the accessory business has shown a decided jump during the past week. In all the price classes the dealers say they have noticed a bit of slowness but that it is not serious, for the business previously was so great that the slightest slacking up was noticeable. Sales last week were 50 per cent better than in the same week a year ago. Used cars are selling very well. Truck sales are in excess of deliveries. With many stored cars going into service, the accessory and tire business has picked up greatly.

Indianapolis—Some slowing up is reported in the larger cities in this territory, but the total sales record is far ahead of that of a year ago. Joseph M. Bloch, of the Gibson Co., which distributes the Overland in Indiana and jobs accessories nationally, says business for April will exceed April, 1916, by 30 per cent. In some of the larger cities, he states, there will be a slow-up amounting to 33 1-3 per cent, but that this will be offset by rural increases. Dealers in all lines report conditions good.

Peoria—The freight car shortage has harmed sales of cars and accessories more than has the war. Dealers are driving cars overland from the factories. Two and three caravans arrive each week, despite the poor roads. "The war" is seldom heard here as an excuse for not buying.

Duluth—Business has not fallen off and there has been a great increase, especially in the wholesale business throughout Northern Michigan, Northern Wisconsin and Northern Minnesota. The accessory and used car business is particularly good.

Fargo, N. D.—Dealers in the higher priced cars state that several prospects have purchased cheaper cars and that some owners are overhauling their used cars to use another year. As a general rule the car and accessory business is good and repairmen are busy. These conditions apply only to the city; throughout the Dakotas the farmers are buying medium priced cars in greater quantities than ever before. The farmer realizes that he has a busy season ahead of him, that the winning of the war depends upon his efforts and that, as North Dakota will supply the bulk of the grain, a car will be more of a necessity than ever.

Spokane—Business is holding up here. The Mitchell branch, through an intensive sales effort, has run far ahead of its last year's business. The Paige and National distributor is doing a fine business in these cars and Garford trucks.

Providence—Business is unusually good. Rhode Island's manufactures would benefit distinctly in case of war. Increases are reported by the dealers in cars and accessories of from 20 to 200 per cent. Trucks are selling well. Accessory buyers seem to be stocking up in anticipation of higher prices.

A Department of Better Mechanics

No. 20

Oiling System Adjustments on the Oakland 32

DUE to the varying character of the roads throughout the country and the varying manner in which different owners drive, the oiling requirements of any two cars of the same make are liable to be different.

The usual trouble is over-oiling. This is commonly evidenced by:

- 1—Fouling of spark plugs, necessitating cleaning every two days, in exceptional cases.
- 2—Excessive formation of carbon.
- 3—Continual smoky exhaust.
- 4—Breaking of oil glasses.
- 5—Thinning of the lubricating oil, as if by the addition of kerosene.

Ordinarily a simple adjustment will remove all these. The oil pump is shown in Fig. 1. The oil is pumped from the base, Fig. 2, past the check ball F, Fig. 1, up into the oil glass, and thence to the oil troughs.

The lift of this check ball F is regulated by the stop E. The first adjustment, then, is to remove the copper gasket B, place it on an anvil, and pound it down thinner. This decreases the lift of the ball, and cuts down the flow of oil.

The oil glass should run from $\frac{1}{2}$ to $\frac{3}{4}$ full. If this can not be cut down by pounding the gasket thin, remove the gasket entirely, and build up the distance A with paper gaskets until the correct amount of oil flows. Most cases of over-oiling may be corrected by this adjustment alone.

REMEDYING BROKEN GLASSES

Oil glasses usually break because of too much oil, and too much pressure. The purpose of the plunger ball C is to relieve this pressure, and permit the excess oil to pass back to the base. It occasionally happens that the overflow hole at the bottom of the plunger is too small to care for this excess oil.

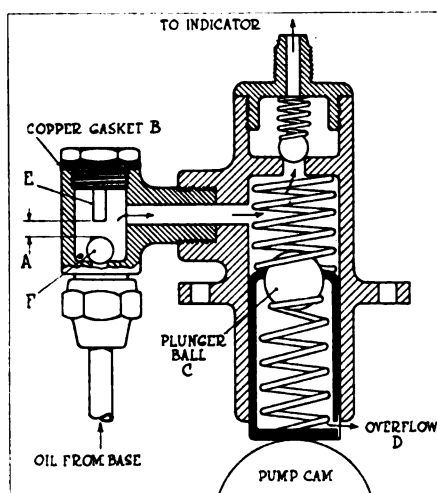


Fig. 1—Cam-operated plunger pump which circulates the oil. The oil is sucked through the gravity seated ball valve at the left and is discharged through the spring seated ball valve above the pump plunger chamber. Excess oil forces itself past the plunger ball and out through the overflow

The remedy then is to remove the oil pump and enlarge this overflow hole. This is done by removing the plunger, filing flat the surface next the overflow hole, then drilling a $\frac{1}{8}$ in. hole through the body of the plunger.

When replacing broken glasses be certain to use glass provided for that purpose. Window glass or single thickness glass is too thin, and repeated glass breakages are often the result of using improper glass.

OBSCURE CAUSES OF OVEROILING

Many drivers habitually carry their oil level too high. As a result the oil splashes from the reservoir into the troughs, and no amount of adjustment will do any good. Ordinarily, as long as oil is circulating in the gage, there is plenty of oil, provided the oil has been brought to the indicator within the last 300 miles. This rule should be changed if a long trip is to be taken.

At times the oil level will be too high, because the oil level indicator is too high. This is the method of checking the correctness of the oil level:

- 1—Drain and remove base.
- 2—Place base on a level bench and block it up level.
- 3—Fill the reservoir with oil until the oil just runs out of the oil level indicator.
- 4—Measure the distance from the bottom of the oil trough to the upper surface of the oil in the reservoir. This should be $\frac{3}{8}$ in.
- 5—If it is less than $\frac{3}{8}$ in., remove the oil level indicator, and secure it to the base at the correct level.

Another obscure cause of overoiling is that the holes in the six-hole oil tube point so that they throw the oil directly onto the cranks instead of into the oil troughs. Note whether this is the case, and if it is loosen the solder holding the

Some Hard Job

YOU are likely to hit a repair job this summer that is difficult for you. Maybe you had trouble with the same job last summer. Ask MOTOR WORLD'S Better Mechanics Department to find for you the best way to do it. This may save your customer from a grouch and may save you time and money.

What is the job anyway?

Let's have it!

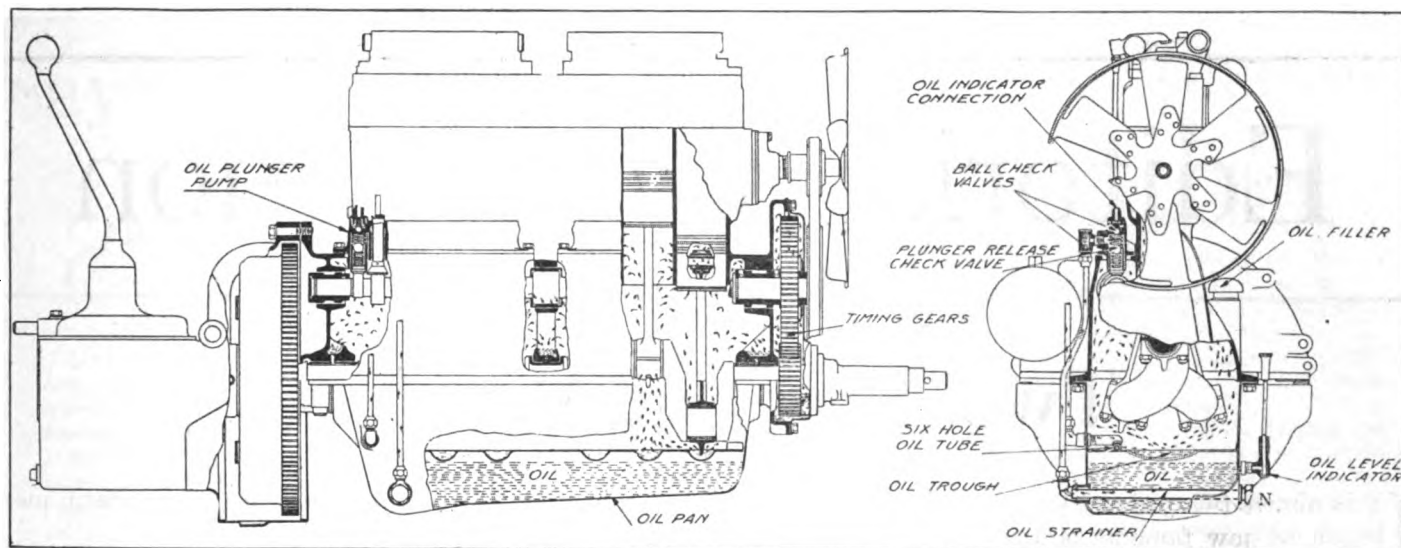


Fig. 2—Diagram of oiling system, indicating location of pump. The small arrows show how the oil is distributed to different parts of the engine

six-hole oil tube to the case and point the openings so that the oil is thrown down into the troughs.

These last two suggestions are infrequent, but worthy of investigation.

MECHANICAL CHANGES

The most common mechanical change is to cut down the level of the oil in each of the oil troughs. To do this:

1—Measure down 1 in. in the side of each trough, on the side that the crank dipper strikes first when the engine is running. Prick punch a mark there in each case.

2—Drill a $\frac{3}{8}$ in. hole through the side of the oil trough. This is shown in Fig. 3.

These holes act as a return for the excess oil, and permit it to run back to the reservoir. If they were drilled on the side that the dipper leaves the troughs, the oil would all be thrown from the troughs by the dippers.

Another common method of decreasing the splash is to decrease both the length and width of the oil dippers themselves. This is the way this is done:

1—Cut $\frac{3}{16}$ in. off the tips of each of the dippers.

2—Cut the dippers down until they are $\frac{3}{32}$ in. wide.

This decreases the amount that the dippers dip in the trough, and hence decreases the amount of oil splashed.

In exceptionally obstinate cases, additional holes may be drilled between each of the holes already in the pistons that serve as a return for the excess oil. However, it will usually be found sufficient to broach out the holes already in the pistons, making them somewhat larger.

REMOVING THE OIL STRAINER

Considerable trouble is experienced after the removal, cleaning and replacement of the oil strainer. This is because the strainer was not replaced in line with the oil pump inlet, and the oil was sent through the system without straining. This is the way to remove, clean and replace the strainer:

Previous Articles

Subject	No.	Date
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor	12	Feb. 28
Paige—Oil level adjustments	13	Mar. 7
All Cars—Removing compression knock	14	Mar. 14
All Cars—Rebuilding the Storage Battery	15	Mar. 21
Cadillac—Rebuilding the radiator	16	Mar. 28
Ford—Magnet replacement on magneto	17	Apr. 4
Saxon—Clutch repairs and adjustments	18	Apr. 11
Timken—Rear axle adjustments	19	Apr. 18

NEXT WEEK

Repairing Ford Radiator and Speed Work on Ford Axle

1—Remove the strainer by unscrewing the nut N, Fig. 3.

2—Clean screen in a pail of gasoline.

3—Remove the inlet pipe coupling and unscrew the elbow M.

4—Replace the oil screen.

5—Line it up with the elbow opening, using a pencil.

6—Replace the elbow, making sure that the screen is lined up correctly.

7—Replace the union on the oil pump inlet pipe. Make all connections tight.

8—Remove the check valve cap, and prime the pump with oil.

An explanation of the reason that the lubricating oil thins out quickly in some cases might be interesting. Overoiling causes the engine to skip. In skipping, fresh gas is condensed in that cylinder. This gas, or gasoline, goes past the pistons and into the lubricating oil in the base, making it much thinner.

It is to be understood that the adjustments outlined in this article are not to be used without discretion in every case of overoiling. They should be tried usually in the order given, and the first adjustment will in practically every case remove the overoiling. The mechanic must use his judgment in combining the remedies to suit the case in question.

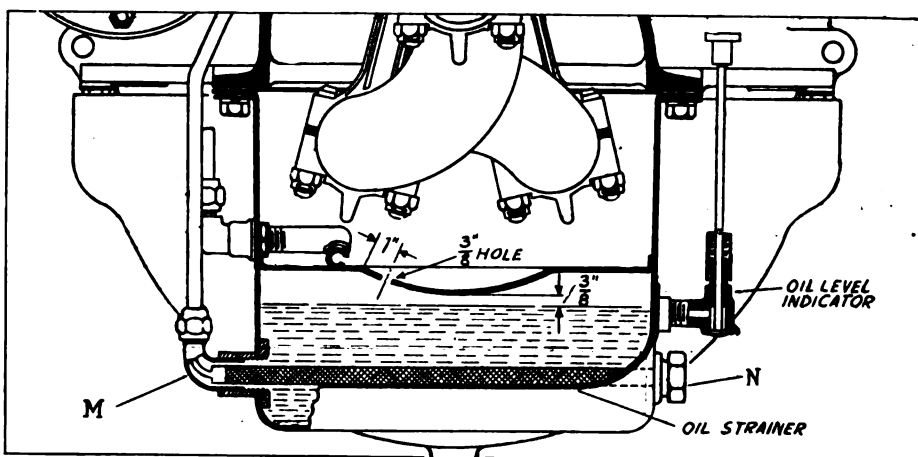


Fig. 3—Section through crankcase, showing $\frac{3}{8}$ -in. overflow hole which may be drilled in the splash trough

Editorial Observation

Two Years of Progress

IT is almost two years to a day that MOTOR WORLD began its now famous campaign that started with a story on "Dirt vs. \$." It was a campaign aimed at the slovenly methods in garages and salesrooms, at the low standard of merchandising that prevailed.

This first story was in the issue of April 28, 1915. It hardly seems that far back, does it? Time moves so rapidly.

The intervening two years have been years of wonderful progress in the motor car trade.

To-day there are better merchants, better garages, better salesrooms, better mechanics and more prosperous dealers and garagemen. Thousands of them were anxious to be better business men, and they acted quickly when the way was pointed out to them.

There are, of course, remaining thousands who are yet far below par, but things are progressing. If a single thousand gets an inspiration from this issue of MOTOR WORLD great progress will have been made.

One Southern dealer says he has tripled his profits

since awakening to the principles of modern merchandising and business.

Another has developed an accessory store from a little runway show window.

And there are many hundreds of similar stories.

The work will go on.

The movement is now deeply rooted and nationwide. The trade is at a point never attained before. The next two years should see progress that will make 1915 and 1916 seem snail-like.

More Than a Trade Paper —An Institution of Service

MOTOR WORLD aims to continue its old work and expand it with new plans, new ideas and new departments. Only two weeks ago it added its Used Car Price Record, and other plans of service to the merchant are in prospect.

It is our aim to make MOTOR WORLD more and more valuable as a business guide. Upon this principle we have thus far achieved marked success, and we shall continue to make it more than a Trade Paper—an Institution of Service.

The Jobber's Part

THE jobber of accessories has a big part to play in the summer merchandising of his goods. His success depends upon the success of the retailer, and he may greatly benefit himself by helping the dealer.

Perhaps the accessory dealer is a garageman—as he generally is—and doesn't have a good display window. Maybe he doesn't know how to make one or simply never thought of starting the job. The jobber's salesman can step in here and, acting as merchandising counsel, get the dealer started on the road to greater profits.

Maybe the dealer never changes the display in his show cases, cabinets or window. The jobber's salesman could step in here and wash the fix-

tures and show the dealer how things should be kept up.

Perhaps the dealer has some old stock that should be cleaned out. The jobber's salesman could help arrange a bargain sale and move the goods. It is, of course, assumed that jobbers' salesmen are getting beyond the point where they consider it good business to overstock a man.

The jobber's salesman is a wonderful power for good. He can bring the trade up to a higher level and make more business for the dealer and the jobber. But to do this he must be adequately schooled in these modern methods. He should engage competent instruction if necessary and teach his men.

IMPORTANT

A number of the articles on Better Mechanics which have appeared in Motor World have been reprinted.

These Are Ready

	No.
Overland—Main and connecting rod bearings	1
Cadillac—Cam and fan-shaft driving chains	2
Maxwell—Rear axle repairs	3
Chevrolet—Clutch repairs	4
Borg & Beck—Clutch repairs	5
Hudson—Super-Six oiling system adjustments	6

They cost 10 cents each

Says Standard Oil Is Boss of the Business

THE COMMISSION DISCOVERED

1—That in a majority of marketing territories the Standard companies are dominant.

2—That the several Standard companies have maintained a distribution of territory in the marketing of gasoline, and that no substantial competition in the chief petroleum products exists among the several Standard companies.

3—That this absence of competition is due to a community of stock ownership.

4—That the facts disclose such advances in prices of gasoline and such differences in price corresponding to Standard marketing territories as are not possible of explanation apart from the foregoing conditions.

5—The commission has not found conclusive evidence of collusion among the various Standard companies in violation of the dissolution decree.

6—That the combination of pipe lines with the other branches of the industry has tended to establish and perpetuate monopoly.

7—That gasoline has deteriorated in quality, a variety of products being sold under that name.

Trucks Taxed \$12 to \$100

LOUISVILLE, KY., April 23—The Mathers Bill, with provisions that motor trucks be taxed \$12 for those below 3-ton capacity; \$50 for 4-ton; \$65 for 5-ton, and \$100 for 6-ton trucks and over, was passed after several hours of argument in the House of Representatives yesterday afternoon. Final vote on passage of the bill was 45 to 43. The bill would raise about \$45,000 a year, it is estimated, the revenue to go to the road fund. Trucks used by farmers in taking their produce to market are exempted.

Maxwell Having Big Business

DETROIT, April 23—Sales of the Maxwell Motor Co. for the first 3 months of this year were more than 58 per cent larger than for the corresponding period last year. The total for the quarter was 19,000 cars against 12,032 cars in the first quarter of 1916. Indications are that after deducting the usual dividends of \$3,000,000 and a possible Government tax of between \$500,000 and \$600,000, almost \$2,000,000 will be carried to the surplus account.

Federal Trade Commission Completes Its Gas Investigation

WASHINGTON, D. C., April 24—The long-deferred report of the Federal Trade Commission on the price of gasoline was transmitted to the Senate to-day and the finding of the Commission is that Standard Oil interests substantially dominate the gasoline industry—refining, pipe-line transportation and marketing.

Despite dissolution of the so-called "Oil Trust" by the United States Supreme Court, the commission concludes that Standard Oil domination has had a "fundamental bearing" upon gasoline prices, declared to have been arbitrarily increased.

In an exhaustive report of its investigation, under resolutions of Senators Gore and Owen of Oklahoma, and its statutory authority, the commission declares, in substance, that real competition does not exist among the various Standard Oil companies because of interlocking stock ownership through the holding of a majority of shares in the constituent Standard companies by identical interests.

Legislation to meet these conditions is recommended by the commission. Also its evidence and findings have been transmitted to the Attorney-General for appropriate action.

In detail, the commission urged that when it finds, as in the case of the gasoline industry, an anti-trust dissolution decree has not restored competitive conditions, Congress might amend the Trade Commission Act so as to authorize and direct the Attorney-General to re-open the case for review as to the efficacy of a dissolution decree. In such proceedings it is suggested that the commission's findings should be admissible evidence and that the courts should have power to make new decrees to insure competition.

Factors in Standard Oil domination cited in the commission's report were:

"Division of gasoline marketing into eleven territorial divisions, at least nine of which are said to be dominated by various Standard Oil companies.

"Stockholders of the several Standard companies are, to a great degree, the same individuals or interests, more than half of the stock of the various companies being in the same hands. Moreover, the report states that leading Standard officers often hold considerable

THE COMMISSION RECOMMENDS

1—A law providing for the re-opening of anti-trust cases on the application of the Attorney-General by a bill of review for the purpose of securing such modifications of decrees as new conditions may require.

2—Abolition, by legislation, in certain cases, of common stock ownership in corporations which have been members of a combination dissolved under the Sherman law.

3—Effective limitation upon common ownership of stock in potentially competitive corporations by withdrawing the power of voting and control.

4—Legislation which, while recognizing common ownership, would fix upon such common owners the responsibility for the acts of each of the several companies so owned, which prevent competition.

5—Segregation of the ownership of the pipe lines from the other branches of the petroleum industry.

6—Fixing, by Congressional legislation, of standards for gasoline.

7—Federal collection and publication of accurate statistics and information regarding the industry.

amounts of stock in two or more companies.

"Standard Oil refineries produced more than 60 per cent of gasoline produced in 1915, sold about 65 per cent of the total marketed and held more than 70 per cent of gasoline stocks.

"Correspondence of the difference of prices (in 1915)," the commission's report says, "with Standard marketing territories, itself points to arbitrary price making. But the arbitrary character of the inequalities in price is conclusively demonstrated by the facts that as between most of the territories there were no such differences in demand and supply * * * and the margin between cost and price was widely different in the different territories."

Wholesale prices rose between 75 and 85 per cent in 1915, according to the commission's report, and retail prices also soared. Only a part of the advance was declared due to increased demand and scarcity, the demand increasing 38 per cent in 1915 and the production but 7 per cent less. Very large profits were earned, as shown by the books of the companies and by enhanced stock market value of oil securities.

Kansas and Missouri to War with Tractors

**Will Turn Over the Soil of Two
States to Boost Food Supply—
Schools Ready to Help**

KANSAS CITY, April 23—The tractor army is being mobilized for the drive on the soil of Kansas and Missouri, to increase the food supply. The state of Kansas has appointed a Council of Defense; Missouri will have one this week, and Kansas City will probably provide a committee to work in conjunction with the state bodies. The chief service of the committees probably will be to see that machinery, especially tractors, is put to maximum use.

The Kansas City Tractor Club, at a meeting April 21, further perfected its plans for co-operating. It pledged its support to the two state governments in the supreme effort for food production; and sent a telegram to President Wilson asking what proportion of the seven billion dollars set aside for war purposes would be allowed for financing the farmers in buying farm tractors and implements.

The club has heard from many bankers of the two states, that they are ready and eager to finance the purchase of tractors by responsible parties. There is an abundance of money in the country now, apparently plenty for all necessary purchases and expenses of production, though this phase has not been thoroughly studied.

The club adopted resolutions suggesting that the supply of steel for tractors and implements be conserved, and that there be guard also against the sale abroad of tractors that might be needed at home.

Twenty-four tractor companies were represented at the meeting. All reported that problems of distribution were carefully considered; that the dealers and agents in the country were keeping track of possible uses, and that supplies could be assembled quickly to the extent of the limited number of tractors being manufactured. The tractor dealers and agents expect the council of defense to prepare any necessary data on the unused lands that local committees might be organized to farm. The suggestion has been made that in each locality such committees be appointed who might get the privilege of using vacant ground, or of assisting smaller farmers, the committees to secure the tractors and implements for the purpose.

The problem of efficient help to man the tractors and take care of them has been solved quickly. The Rahe Automobile School sent a telegram to President Wilson, telling of its 8000 trained automobile and tractor repairmen. April 20 the government asked specific information on wages expected, and so forth. The Rahe school wired back that 5000 men could be marshaled quickly, to go anywhere, and act as service men for tractors. The school then wired these 5000, scattered all over the United States, to hold themselves in readiness for a call.

At Sweeney's Automobile Training School,

a similar situation exists. Here, 150 men in the school volunteered to go anywhere, at soldier's wages if necessary, to help their country in the emergency. Sweeney has assembled twelve tractors on a 12-acre tract across the plaza from the Union Station, where special demonstrations of tractors will be made, and the school's work prosecuted. Here, the students who have not yet reached the tractor course of the school may work on the tractors at night.

Missouri Doubles License

ST. LOUIS, April 23—Governor Gerdner has signed two bills passed by the recent legislature at the request of the St. Louis Automobile Manufacturers' and Dealers' Association. The first doubles the state tax on motor cars, and the second gives precedence of a chattel mortgage over a mechanic's lien.

To Make Velies in Canada

TORONTO, ONT., April 21—The Velie is to be built in Toronto, according to W. H. Wilkinson, manager of the Canadian Auto Sales Co., Ltd., Velie distributors. The Canadian company will be known as the Canadian Velie Motor Car Co. The plant will cost upward of a million dollars, and construction will start in the very near future on one of the two sites now held by the company.

Standard Parts Office in Cleveland

CLEVELAND, April 23—Executive offices of the Standard Auto Parts Co. were opened last week in the Hickox Building. This will not affect the organizations at the plants of the Perfection Spring Co., Standard Welding Co., Western Spring & Axle Co. and Bock Bearing Co., which are units in the parent company.

War Helping Rubber Imports

NEW YORK, April 20—The rubber trade is being benefited by the entrance of the United States into the war, according to Samuel P. Colt, president of the United States Rubber Co. According to Colt, the rubber goods manufacturers are now able to get larger supplies. Previous to the declaration of war it was necessary to secure a pass for the importation of crude rubber into this country. The English authorities had a way of allowing only a part of the rubber desired to be shipped. For instance, if 400 tons were asked for, only 200 were received. But now that the United States has entered the war, England regards us as a rightful ally, and is showing her friendship by helping out our business interests, an example being in the rubber trade, which is in the majority of cases receiving full shipments.

Making Money in Financing

NEW YORK, April 23—The Guaranty Securities Corp., engaged in financing automobile purchases by time payments, has declared a dividend of 2 per cent, payable to stock of record April 14. The capital stock is \$1,000,000.

Tire Raise Is Probable About May 1; 10 to 25%

**Nothing Definite Stated by Tire
People, but Trade Expects
Increase—Cotton High**

NEW YORK, April 23—Every indication points toward a further rise in the price of tires May 1. As yet no definite announcements have been made by tire makers, though dealers in general are free in their prediction that prices are going up.

It is variously rumored that the increase will be as little as 10 per cent or as much as 25 per cent. Some dealers believe that probably 10 per cent will be added May 1 and another 10 per cent June 1.

The rubber people are inclined to place the blame for the rise on the cotton people; the cotton people in turn point out that rubber is higher now than last year, that chemicals are higher, and that labor is higher.

As a matter of fact, rubber is a fairly staple article; there have been no great fluctuations in price for a year. The present price hovers around 80 cents, and while there have been no great stocks on hand during the past two years, rubber men do not view the situation with alarm. In brief there is plenty of rubber.

Cotton, on the other hand, has soared in price from 75 to 100 per cent in the year. Last year the price of the best grades of Sea Island was about 60 cents, this year the figure is \$1.50. The best of the Egyptian crop is now exhausted and the new crop will not come in until October. In the meantime, tire makers are using more and more of American cotton, which has improved marvelously in quality of late. This is worth about 70 cents a pound now.

Insofar as the supply of cotton for fabric is concerned, there is no uneasiness. But it is another matter to get that supply to this country. The British Government has commandeered ships for war purposes, and those ships that are left are in constant peril of submarines. One ship left Alexandria last week, but cotton brokers are not altogether enthusiastic about the possibility of its reaching New York.

Tire jobbers and big dealers are urging the probability of a rise and suggesting that stocks be filled immediately in anticipation.

To Open Marquette Motor Plant

SAGINAW, MICH., April 23—The meeting in Saginaw of W. C. Durant and associates held last week will result in the opening of the large factory building formerly occupied by the Marquette Motor Works. This information is based upon a positive statement made by Mayor H. T. Paddock of Saginaw.

Pacific Coast Dealers In One Organization

W. E. Hughson Actively Engaged In Forming an All-Embracing Association—Prospects Bright

SAN FRANCISCO, April 23—W. L. Hughson, of the Pacific Kesselkar company, has recently visited every city on the Pacific Coast in an effort to bring about an all-coast organization of automobile dealers. Conferences were held with the Oregon Motor Car Association and similar organizations in other cities. Hughson says prospects for an all-coast association are particularly bright.

Anderson Adds Novel Body

ROCK HILL, S. C., April 23—The Anderson Motor Car Co. is just introducing a novel type of body. This is instantly convertible from a five-passenger of full dimensions to a two-passenger, and when in two-passenger form there is practically no suggestion that the body is any way different from a roomy roadster with a big rear baggage compartment. The front seats are divided and in the five-passenger form; the entrance to the rear compartment is between the front seats, since there are only two doors.

There are no loose pieces or extra sections, because the painted portion which forms the lid of the boot of the two-passenger is in reality the back of the seat in the five-passenger. The back seat itself and the vertical portion of the same form panels of the two-passenger, being hinged together so that a simple pull causes them to roll up and become the deck of the two-passenger, reversing the pressure, folding them back again and re-creating the rear seat. The most striking feature of this car is the simplicity of these moving parts and the absence of elaborate hooks or latches.

Hudson Adds New Speedster

DETROIT, April 23—A new four-passenger car has just been placed on the market by the Hudson Motor Car Co. This is mounted on the same chassis as the Hudson phaeton, with the exception that the steering gear is lower and the control set adapted to the low seats used in the four-passenger speedster model. The motor is the Hudson super-six, and throughout the parts are practically the same as in the phaeton model.

In appearance the car is lower and longer than the Hudson touring car, an impression which is gained by the fact that 32 x 4½-in. wheels are used instead of the 35-in. diameter on the touring car. The longer appearance is due to the low lines. This car is approximately 200 lb. lighter than the phaeton.

A feature of the speedster is the low, roomy arrangement of the seats. The capacity is four-passenger and the seats allow the occupants to lounge easily. There is plenty of leg room in both the

front and the tonneau, and instead of a rail foot rest in the tonneau the speedster has a triangle form foot rest which is removable.

The extra tires are carried on the rear of the speedster instead of on the runningboard, as they are on the super-six phaeton.

Monroe Prices Up

PONTIAC, MICH., April 24—At a meeting of the stockholders of the Monroe Motor Co. held here on April 13 the capital stock was increased from \$1,000,000 to \$2,000,000.

The price of the car was also increased from \$985 to \$1,095 on the models M-4 touring and M-5 club. The price on the small models remains \$565 for the roadster, \$635 for the club and \$965 for the sedan.

Saxon Price Increase May 1

DETROIT, April 20—The Saxon Motor Car Co. will increase its car prices May 1. The amount will be announced later.

Doble to Sell at \$2,500

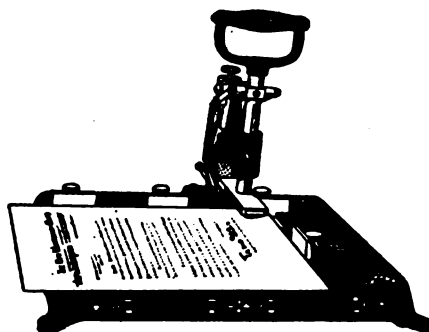
CHICAGO, April 20—The price of the new Doble steam touring car and three-passenger roadster will be \$2,500. The prices of other models will be announced about the first of June.

Premier to Advance May 1

NEW YORK, April 20—The Premier Motor Corp. will increase its car prices May 1. Announcement will be made later of the exact amount.

To Sign Form Letters

Form letters lose much of their punch when signed with a rubber stamp or the signature is printed. Pen signatures bring results and the New Writerpress Co., Shelton, Conn., has placed on the market a device styled Signowriter which will sign 1500 to 2000 letters per hour with a facsimile signature in ordinary writing fluid, not printers' ink, inked ribbon or stamp pad ink. The device is somewhat like a stamp, but the results obtained are entirely different from any results obtained with an ordinary stamp, in fact, it is impossible to tell from inspection whether signatures produced with the Signowriter are written with a pen or not. The price, including a signature plate, is \$35.



The Signowriter signs form letters in ordinary ink with a facsimile signature

15% Freight Increase Granted to Railroads

Carriers Can File Supplementary Tariffs Effective June 1—Hearings May Alter Situation

WASHINGTON, April 19—The Interstate Commerce Commission granted today the 15 per cent increase in freight rates asked for by the railroads of the country, to meet the increased cost of operation entailed by the Adamson law, but the grant had a proviso.

The commission issued a tentative order permitting the railroads to file supplemental tariffs under the 15 per cent increase, to become effective June 1, but beginning to-morrow it will hold hearings, at which shippers and others interested may state their views on the order.

If at the close of the hearings the commission deems it advisable to adopt another method in dealing with the application for a general increase, the tentative order will be withdrawn, leaving the situation as it was before it was issued.

Menhall to Make Trailers

EDGERTON, WIS., April 21—James W. Menhall, Beloit, Wis., who recently disposed of his interests in the Warner Auto-Trailer Co., Beloit, and retired as vice-president, has organized the Highway Trailer Co. and will engage in the manufacture of a number of trailer devices at once. Mr. Menhall has leased the entire plant of the Edgerton Wagon Works, Edgerton, Wis., and will start operations about May 1. The Highway Trailer Co. is capitalized at \$185,000 and will specialize in two and four-wheeled trailers protected by patents held by Mr. Menhall, who recently perfected a new coupler and linking device for attaching trailers to passenger and commercial cars.

Timken Has Tractor Department

CANTON, O., April 20—The Timken Roller Bearing Co. has established a department which will furnish bearings for application to farm tractors. L. M. Klinedinst is manager of the department. There has been a demand for bearings in this field for some time, but because of the regular demand in the motor car field the company was unable to specialize until it recently made factory additions, including a cold drawn steel tube mill and a steel mill.

New York Branch for Lawrence

NEW YORK, April 23—L. Lawrence & Co. have opened another New York branch at 546 West Forty-fifth Street. They repair scored cylinders—electrically fusing them with a silver and nickel alloy by their patented process. They have branches in Chicago, Detroit and Newark, N. J.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

H. S. Daniels, for five years director of publicity for the Kissel Motor Car Co., Hartford, Wis., will leave May 1 to accept a position with enlarged duties with the Dort Motor Car Co., with headquarters in Detroit. He is succeeded by Ralph Kaye.

Alvin Johnson, of The Auto Tire Co., 129 Allyn street, Hartford, Conn., has accepted a position as head of the inspection department of the Dreadnought Tire Co., Baltimore.

J. R. Murphy, formerly with the Howard Auto Co., California Buick distributor, has been made Denby truck retail sales manager for the Farnsworth Motor Car Co., Seattle. Murphy is a trade veteran. The Farnsworth company has closed a contract for Western Washington with the Saxon Motor Car Co.

Harold E. Phipps has been transferred from a position as salesman in Boston to manager of the Portland branch of the Chalmers northeastern agency. He succeeds W. M. Chellis, who resigned to represent the Jackson in Maine.

John B. Orman has been made manager of the Indiana Doble Steam Car Co., Indianapolis. He has, for the past ten years, been connected with the sales and advertising department of the Premier Motor Mfg. Co., and has also been manager of the Indianapolis automobile show for several years. The new Doble company will distribute in Indiana and Eastern Illinois.

R. L. Warner has been made district manager for the Moreland Motor Truck Co., Los Angeles, with headquarters at San Diego. For the past ten years he has been Los Angeles branch manager for the Remy Electric Co.

Harry L. Bill has been appointed works manager of the Chalmers Motor Co., Detroit. Bill was formerly the vice-president and general manager of the Springfield Body Corp., which position he resigned recently because of illness in his family. He was connected with the Chalmers company several years ago in the engineering and experimental departments and also as manager of the Chalmers racing teams of the early racing days.

B. J. MacMullen has resigned his position as manager of the Chalmers Motor Co. branch, Kansas City.

T. E. Dean has resigned as district manager in the Southwest for the Hudson Motor Car Co.

C. R. Arnbrust has resigned from the Ben-Hur Motor Co., Cleveland, effective May 1. He was chief engineer and consulting engineer.

L. W. Nutt has joined the H. W. Cooper Saddlery Hardware Co., Moline, Ill. He was formerly secretary and purchasing agent of the Velle Motors Corp.

G. A. Gibson has been appointed production manager of the Diamond T Motor Car Co., Chicago, maker of Diamond T trucks. Carl Burton will be in charge of material. Both men come from the Packard organization in Kansas City. J. B. Burris, formerly with the Packard in New York, has also joined the company.

John McCann, purchasing agent of the Simms Magneto Co., East Orange, will resign May 1 to enter partnership with W. R. Keene, under the name of W. R. Keene & Co., New York, to manufacture taps, dies, drills, etc.

W. E. Stalnaker, vice-president and director of sales of the Pathfinder Co., Indianapolis, has tendered his services to Adjutant-General H. B. Smith in recruiting an aero squadron of 168 officers and men.

H. H. Jinnett has become credit manager of the Staybestos Mfg. Co., Germantown, Pa., maker of friction facings, packings, etc. He was formerly with the Bell Telephone Co.

Richard Everett, former sales manager of the Raybestos Co., has joined the Standard Woven Fabrics Co., Walpole, Mass.

W. C. Goodchild has been made New Hampshire manager for Metz Co., Waltham, Mass. His headquarters will be in Manchester. This is a newly created position.

"Joe" Dawson, famous racing driver, has joined the Chalmers Motor Co. as assistant experimental engineer with special duties in the new contest and trial section of the advertising department.

C. O. Aasmus, manager of the Maxwell export field sales department, has resigned.

G. U. Radoyex has resigned from the Hudson Motor Car Co., where he has been assistant director of sales and advertising.

Guy Morgan, president of the Abbot Corp., Detroit, has resigned. He was formerly with the Mitchell Motors Co., Racine, before joining the Abbot corporation. He will soon make a formal announcement of future plans.

Louis C. Marie, formerly connected with Willys-Overland of California as manager of the used car department, has resigned to become branch manager of the J. W. Leavitt & Co. Chevrolet branch in San Diego County, Cal.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	69	71
*J. I. Case T. M. Co. pfd.	83	86
Chalmers Motor Co. com.	17	23
Chalmers Motor Co. pfd.	..	..
*Chandler Motor Car Co.	93	95
Chevrolet Motor Co.	87	99
Fisher Body Corp. com.	..	..
Fisher Body Corp. pfd.	94	96
Fisk Rubber Co. com.	70	75
Fisk Rubber Co. 1st pfd.	103	106
Fisk Rubber Co. 2d pfd.	92	95
Firestone Tire & Rub. Co. com.	132	137
Firestone Tire & Rub. Co. pfd.	106	108
*General Motors Co. com.	100 1/4	102
*General Motors Co. pfd.	86 1/2	87
*B. F. Goodrich Co. com.	47 1/2	48 1/2
*B. F. Goodrich Co. pfd.	107	108 1/2
Goodyear Tire & Rub. Co. com.	219	..
Goodyear Tire & Rub. Co. pfd.	..	107 1/2
Grant Motor Car Corp. com.	5	7
Hupp Motor Car Corp. com.	3 1/2	4
Hupp Motor Car Corp. com.	75	81
International Motor Co. com.	..	16
International Motor Co. 1st pfd.	..	70
International Motor Co. 2d pfd.	..	30
*Kelly-Springfield Tire Co. com.	51	53
*Kelly-Springfield T. Co. 1st pfd.	85	92
*Lee Rubber & Tire Corp.	20	20 1/2
*Maxwell Motor Co., Inc. com.	46 3/4	48
*Maxwell Motor Co., Inc., 1st pfd.	64	65
*Maxwell Motor Co. 2d pfd.	30 3/4	33
Miller Rubber Co. com.	215	225
Miller Rubber Co. pfd.	104 1/2	106
Packard Motor Car Co. com.	144	159
Packard Motor Car Co. pfd.	..	101
Palge-Detroit Motor Car Co.	29	31
Peerless Truck & Motor Corp.	15	17
Portage Rubber Co. com.	145	150
Portage Rubber Co. pfd.	..	..
Regal Motor Car Co. pfd.	..	24
Reo Motor Car Co.	28 1/2	30
*Saxon Motor Car Corp.	49 1/4	51
Springfield Body Corp. com.	77	80
Springfield Body Corp. pfd.	110	117
Standard Motor Construction Co.	14 1/2	15
Standard Parts Co.	..	90
*Stewart-Warner Speed. Corp.	73 3/4	74 3/4
*Studebaker Corp. com.	84 1/2	84 1/2
*Studebaker Corp. pfd.	104	106
Swinehart Tire & Rubber Co.	70	78
United Motors Corp.	30 1/4	31 1/4
*U. S. Rubber Co. com.	58	58 1/2
*U. S. Rubber Co. pfd.	173	173 3/4
*White Motor Co.	45	45 1/2
*Willys-Overland Co. com.	29 1/4	29 1/2
*Willys-Overland Co. pfd.	96 1/2	96 1/2

*At close April 21, 1917. Listed New York Stock Exchange.

Electric Accessory Men Form Trade Association

Automotive Electric Association Is Formed in Atlantic City to Standardize Electric Accessories

ATLANTIC CITY, April 20—The Automotive Electric Association was formed here Monday. Its members are manufacturers of electric accessories and their purpose is to improve and develop the automotive electric accessories business through standardization and by friendly interchange of experience with reference to design and manufacture.

The following officers were elected at this meeting: President, G. Brewer Griffin, Pittsburgh, Pa.; vice-president, C. O. Miner, Toledo, Ohio; secretary, G. S. Cole, Cleveland, Ohio; treasurer, C. L. Amos, Syracuse, N. Y. The next meeting of this association will be held at Hot Springs, Va., May 17 to 19.

Princess Raises Price

DETROIT, April 23—The Princess Motor Car Corp. has raised the price of its three, four and five-passenger cars from \$775 to \$825, effective May 1.

H. A. Goddard, connected with the Perfection Spring Co., Cleveland, and located in New York, will soon be transferred to Detroit.

Frank H. Trego is now located with the Trego Motors Corp., Detroit, as managing vice-president at New Haven, Conn. He was formerly research engineer of the Packard Motor Car Co.

O. B. Henderson, who succeeded L. V. Starr as acting manager of the Los Angeles branch of the Willys-Overland Co., of California, has been named manager. Henderson formerly was with the Overland company in Philadelphia.

Harry G. Moore, who was branch manager for the Velle Motor Co., Chicago, has been appointed Pacific Coast sales representative for the Star Rubber Co., with headquarters in Los Angeles.

Don Smith, sales manager of Earl V. Armstrong, Inc., Los Angeles, Chandler dealer, has been made vice-president of the company. J. G. Germond succeeds Smith.

G. E. Ruckstell, former race driver, has been put in charge of the service department of George R. Bentel, Mercer and Jordan dealer at Los Angeles.

H. W. Scholl has become director of sales of the Walker M. Leavett Co., maker of Magnalite pistons and other parts. He was formerly sales engineer of the Splittorf Electrical Co., Newark, N. J.

Dick Farrington has been made advertising manager of the Parker Rust Proof Co. of America, Detroit. He was formerly advertising manager of the Gibson Auto Co., Indianapolis.

Raymond Wice, advertising manager for the Hudson-Phillips Motor Car Co., St. Louis, has been added to the territorial force of that company and will return to the selling end.

Carl Hanson, former cost and production manager for the General Motors Co., has taken up his duties as cost and production expert for the Dorris Motor Car Co., St. Louis.

United Motor Profits Go Above \$23,000,000

**First Statement for 9 Months Shows
Earnings of \$9 Per Share—Ex-
pect 40% Increase in Year**

NEW YORK, April 23—Gross sales of the United Motors Corp. for the 9 months ending March 31 totaled \$23,500,000, as compared with \$17,200,000 for the same period ending March 31, 1916. It is estimated that sales for the fiscal year ending June 30 will be \$40,000,000, an increase of 40 per cent over last year. A complete operating statement will be issued immediately after the close of the fiscal year.

Earnings are at the rate of \$9 per share, this in spite of increases in the cost of labor and materials, and it is stated that the company has contracts and orders in hand to insure full operation of the various units up to July 1, 1918.

The United Motors Corp. was formed in May, 1916, with the following companies as a nucleus: Perlman Rim Corp., New York and Jackson; Dayton Engineering Laboratories Co., Dayton, Ohio; Remy Electric Co., Anderson; Hyatt Roller Bearing Co., Newark, N. J., and the New Departure Mfg. Co., Bristol, Conn. The capital involved was \$60,000,000. Subsequently, the Harrison Radiator Corp., Lockport, N. Y., and the Klaxon Co., Newark, N. J., were taken into the company.

All of these plants are at present in a flourishing condition. The Harrison Radiator Corp. has booked orders for between \$5,000,000 and \$6,000,000 for delivery beginning July 1, 1917, and is building extensive additions to its plant. The new plant of the New Departure Mfg. Co. will be in production in June; this will considerably increase the earnings of the company.

Butler to Double Capacity

INDIANAPOLIS, April 19—The Butler Mfg. Co. is celebrating its first anniversary in Indianapolis and is preparing to double its capacity.

Fremont Tractor Meet in August

FREMONT, NEB., April 21—The Fremont tractor demonstrations, which have been designated as the national tractor demonstrations, will be held from Aug. 6 to Aug. 18.

Will Make War Drivers

BOSTON, April 19—A. H. Sowers, New England distributor for the Jackson cars, has offered to have his demonstrator teach any woman, or soldier or sailor, sent to him by the government officials, how to drive so that they might fill in where there were cars available

without drivers. The matter is now under consideration, and it is probable the Boston Automobile Dealers Association will take the matter up and all of them do the same. In this way a lot of soldiers, sailors and others could be trained to handle cars in an emergency.

GAS UP 1 CENT IN CHICAGO

CHICAGO, April 23—The price of gasoline was raised 1 cent to-day, the tank wagon basis now being 20 cents. Retailers are asking 23 cents. A rise is threatened in the East, though nothing definite has been made public as yet. Retailers look for an increase of 1 cent May 1. Present retail prices vary from 25 to 27 cents in New York.

Lewis Distinct from L. P. C.

Editor Motor World: The Lewis Motor Corp., of Detroit, has no connection with the L. P. C. Motor Co., former manufacturers of the "Lewis VI" at Racine, Wis., nor do they handle any parts for these cars.

The Lewis six-cylinder motor is entirely a new creation and is designed by Ralph C. Lewis, who has been in the industry since 1899. Motors only are manufactured for the trade by the Lewis Motor Corp.—Lewis Motor Corp., Detroit.

Clark Heads Kansas City

KANSAS CITY, April 19—A. T. Clark, manager of the Anderson Electric Car Co. at Kansas City, was elected president of the Kansas City Motor Car Dealers' Association last week, succeeding A. F. Norton, resigned. R. C. Greenlease, president of the Greenlease Motor Co., Cadillac dealer, succeeded Mr. Clark as vice-president, and Royal R. Bush, president of the Bush-Morgan Motor Co., Paige and Dort dealers, was made a member of the board of directors, succeeding Mr. Greenlease.

Dowse Forms Own Company

CHICAGO, April 23—The Dowse Rubber Co. has been formed by B. C. Dowse, former president and general manager of the Federal Rubber Mfg. Co. There will be two factories, that in Chicago being the home office.

Machinery in Harroun Plant

DETROIT, April 20—Most of the machinery is in the assembly department of the new plant of the Harroun company at Wayne, Mich. It is expected that motors will be running through production in the course of a few days.

Hudson Teams in Cincinnati Race

DETROIT, April 21—The Hudson Motor Car Co. has entered two super-sixes in the Cincinnati 250-mile race of May 30. Ralph Mulford and Ira Vail will drive. A third car, if finished in time, will be driven by Billy Chandler.

After-War Gas Problem Considered by Chemists

**Association at Meeting Believes
More Gas Should Be Secured
From the Crude Oil**

KANSAS CITY, April 19—"Meet us half way to avoid a shortage of gasoline for motor vehicles in 1919—or after the war!"

This seems to be the gist of sentiment, and the appeal to the automobile industry, at the fifty-fourth meeting of the American Chemical Society, at Kansas City, April 10 to 14.

Gasoline—or, rather, motor fuel—was the paramount subject of discussion and conversation among the chemists at this spring meeting. The chemists, in their formal papers and privately, told how they were trying to meet the needs of the motor industry, as well as of the war situation and the industrial development, with respect to petroleum and coal products. They pointed to the rapid increase in the production of gasoline by the cracking process, which Dr. Walter F. Rittman of Columbia University said would reach a billion gallons in 1918.

Some means of getting more gasoline was absolutely necessary, since the production of petroleum has increased scarcely 30 per cent in seven years, while the consumption of gasoline had increased four times, and the number of automobiles eight times. They pointed out that the production of automobiles would continue to increase at this rate, at least, and probably at a far greater rate. The chemists feel that it is up to them to get more gasoline from the available petroleum, as long as the automobile manufacturers are providing vehicles to run with gasoline.

To Investigate Far East

WASHINGTON, D. C., April 23—Tom O. Jones, of Indianapolis, has been chosen to investigate the automobile markets in the Far East for the Bureau of Foreign and Domestic Commerce of the Department of Commerce. Before sailing he will visit the principal automobile centers in this country to familiarize himself with the export problems of the individual manufacturers. He will then undertake a study of the foreign markets for American motor vehicles, which will include China, the East Indies, Africa and Australia.

The new special agent has been connected with the export end of the American automobile business for a number of years, and has had the benefit of a previous trip to the Far East in the interest of a well-known American automobile concern. At the time of his appointment he was advertising and export manager of an automobile company in Indianapolis.

Manufacturers who wish to consult with Mr. Jones before he sails should address him at Room 409, Custom House, New York City.

In the South Lies Big Business for Electric

People Like That Type of Car and Have Plenty of Money—Roads and Streets Ideal

NEW YORK, April 20—In the South lies one of the greatest opportunities for the electric car, according to E. P. Chalfant, manager of the Eastern division for the Anderson Electric Car Co., who has just completed a long business tour through Dixie.

Two principal reasons stand forth, he states: The electric is suited to the South and the South likes the electric.

"In the South," stated Chalfant, "most cities have their streets well paved and the country roads are sandy or slippery clay, so that little touring of any kind is done outside a radius of 25 miles from the cities. Cities which fit this description are: Richmond, Norfolk, Winston-Salem, Charlotte, Columbia, Charleston, Savannah, Atlanta, Macon, Jacksonville, Tampa, Mobile, Birmingham, Montgomery, New Orleans, Meridian, Nashville, Chattanooga, Knoxville and Memphis.

"The population inside the city limits of these cities is 1,594,583. If cars were sold at the rate of only one to 500 people it would mean the sale of 3189 cars. And where the cars sell repeat orders come easily in this section.

Country, Too, Is Wealthy

"And the country is wealthy. The people have money and the cities are prosperous. The wealth comes from cotton, tobacco, fruits, lumber and naval stores, and is increasing.

"The people like the electric car. They love creature comforts and convenience, and are a deliberate moving type, which isn't keen for strenuous touring or speed. They like good appearance and the atmosphere of affluence and appreciate luxury and good things.

"It may be surprising to many to know that the nearer the equator you go the more enclosed cars are used. They are a hot-climate car as well as a winter car. A heavy roof, heavier than a canvas top, is necessary to keep out the intense heat of the sun. And along the coast a sea breeze comes up at 4 o'clock and it is chilly driving during the evening. Also, heavy and chilling fogs often come down at night and an enclosed car is almost necessary for real comfort.

"For 15 years I myself labored under the delusion that the coolest driving is with the top down, but I have learned differently. It may be more pleasant but it is not coolest. All this makes the electric type of body highly desirable. In Havana quite a few electrics are in use.

"There will have to be more dealers and better electric facilities before sales can go very far. In most of the cities I visited there are generally not more

than three dealers in electrics and often only one. We have placed an agency in Havana. In all of these cities conditions are ripe for the invasion of the electric with the exception of central station arrangements. We must arrange with the central stations for improved facilities and then sales will follow easily if pushed."

Hudson Running Contest

DETROIT, April 19—The Hudson Motor Car Co. is running a sales contest among its dealers on a quota basis. Competition is in three classes. Winning cities for last week are: Class A—Des Moines, \$500; Milwaukee, \$250; New York, \$150. Class B—Memphis, \$400; Seattle, \$200; Baltimore, \$100. Class C—Scottsbluff, \$85; Houston, \$40; Lincoln, \$25.

Bronx Garagemen Form Association

NEW YORK, April 19—The garagemen of the Bronx have formally organized as a division of the New York Garage Association, and will operate as the New York Garage Association, Bronx Branch.

These officers have been chosen: President, F. J. Hinners, Mott Haven Garage; vice-president, J. M. Ireland, Grand Concourse Garage; secretary, Fred Graff, Paramount Garage; treasurer, A. H. Seadale, Tremont Garage.

The association's object is to remedy numerous undesirable conditions that exist in the trade and have made business unprofitable. One of the conditions concerning which complaint is made is the car owner of shifty disposition who gets credit at garage after garage and "hangs up" a whole string before he is checked.

The association also plans to take an active interest, through the New York Garage Association, in civic enterprises and legislation, both city and state. There are 57 garages in the Bronx.

Formal organization was effected Wednesday afternoon, April 18, in the rooms of the Wampanog Democratic Club, Third Avenue and 138th Street.

The New York Garage Association as finally constituted will include similar associations in different sections, such as Washington Heights, Harlem, East Side, West Side and Downtown.

Airplane Co. Incorporated

DAYTON, April 19—The Dayton Airplane Co., Dayton, has been incorporated for \$500,000. Incorporators are Charles F. Kettering, Orville Wright, Edward A. Deeds, Harry E. Talbott and Harold E. Talbott, Jr.

St. Louis Wants Locks

ST. LOUIS, April 19—The police department has announced that it will ask the enactment of an ordinance requiring all motor car owners to lock their machines when leaving them with the engines dead.

40,000 Trucks Needed to Equip Million Men

Will Be Bought from the Manufacturers—Believe 1000 Can Be Delivered First Month

DETROIT, April 21—Army officials have decided that 35,000 to 40,000 trucks will be required to care for an army of 1,000,000 men. The quartermaster's office recommends that these be evenly divided between the 1½ and the 3-ton types. At present the army has 2600 trucks, nearly all in service on the Mexican border.

Trucks will be purchased from the manufacturers, and offers from private firms will not be accepted unless some unforeseen emergency arises. Army officials believe that domestic factories will be able to turn over to the government 1000 trucks within the first month after contracts are placed, and that the rate will be increased to 4000 per month in 6 months. These figures are probably a minimum, as the combined production of Michigan manufacturers of trucks at present is between 200 and 300 daily, which, of course, also includes the 1-ton type.

The engineering corps in the new forces to be raised will be equipped with both tractor and caterpillar trucks, and special ambulance types will be purchased for the ambulance corps. Each motor truck company will be made up of 27 cargo trucks, one repair and kitchen truck and 2 oil and gasoline supply trucks, all under the supervision of a truck master.

If recommendations made to the War Department are adopted companies of the 3-ton trucks will be used for hauling supplies and ammunition from the "rail heads" over good roads; companies of the 1½-ton trucks will be used over inferior roads. Volunteer companies of motor cars, motorcycles and trucks will be asked for.

E. A. Laboratories Buys Newtone

BROOKLYN, N. Y., April 20—The E. A. Laboratories, Inc., accessory maker, has brought the business of the Automobile Supply Mfg. Co., maker of Newtone horns, together with its patents, trade marks, good will, unfilled contracts and orders on hand. Combined with the E. A. Laboratories' present facilities, those acquired in the purchase will provide ample capacity for the manufacture of the Handphones, Newtone and Ford magneto horns formerly made by the Automobile Supply concern, besides increasing production of the E. A. hand and motor-driven warning signals and other automobile accessories in the regular E. A. line.

72,100 Fords in March

DETROIT, April 21—The Ford Motor Co. manufactured 72,100 motor cars in March. These cars were all delivered and sold.

Electric Plans Booster Campaign

All Interests to Unite in Big Effort to Put Electric Vehicles on the Motor Car Map—Reasons for Slow Growth Analyzed

NEW YORK, April 19—The electric vehicle industry is trying to give itself a rejuvenation and see if it can make itself grow.

It was once a promising baby, but, as often happens with human twins, the other brother, the gasoline car, ran away with all the growth and became a giant while the electric was stunted.

Realizing this, the electric people have been for several years, as one of them expressed it, "talking and doing nothing" in an effort to find out how all the electric interests of the whole country can combine and put the electric—pleasure, commercial and industrial—on the business map.

Several years of agitation terminated this afternoon in a meeting of manufacturers at 29 West Thirty-ninth Street, the headquarters of the Electric Vehicle Division of the National Electric Light Association, and before the session ended a plan, which is something long desired, was formulated.

This plan proposes that there be chosen a chief officer for the work, and that up to him be put the task of pushing the job through. He is to have—if the plan is generally adopted—the support of the car and truck makers, the battery makers, the tire makers, the central stations, and all other divisions of the electric industry.

The work will be financed by contributions from various manufacturers and probably \$20,000 will be spent the first year.

To Shove Industry Ahead

Those at to-day's meeting seemed confident that if all friction is eliminated, full co-operation secured and real effort put forth, the electric vehicle industry can be shoved ahead wonderfully in a comparatively short time.

One of the biggest handicaps in getting a plan into operation has been a lack of co-operation. The car makers have cried for help from the central stations, the central stations have said they are being asked too much, someone else has said there is too much seeking for individual advancement by men and companies, and so the condition has grown until co-operation is one of the biggest needs.

The need for greater co-operation was emphasized by E. P. Chalfant, of the Anderson Electric Car Co., in his paper on "What Co-operation Means." He says the manufacturers have for years been asking co-operation from the central stations, and the latter seem to have developed the idea that co-operation means lower rates and contributions to advertising funds.

He urged that a rational program of constructive co-operation be worked out,

financial, physical and educational, and that an effort be made to have all the divisions of the industry get together on one big plan for trade promotion. He said central stations are now advertising to increase the use of electrical utensils, and that similar methods would increase the use of electric cars; that every dollar spent toward advertising

The Life-Giving Plan

1—All divisions of the industry to raise a fund to engage an experienced man to take charge of the propaganda. The yearly cost would be about \$20,000, manufacturers would pay \$1,000 a year each, and the balance, about 25 per cent, would be supplied by the central stations through the National Electric Light Association.

2—This manager to operate under the direction of the electric vehicle manufacturers.

3—A booklet to be prepared for distribution to the central stations setting forth the history, potentialities, and possibilities of the electric vehicle business and explaining to the central stations how they can co-operate through advertising and spreading information. This booklet would include:

- (a) Methods employed and suggested for use by the central stations.
- (b) How a man employed by a central station might co-operate.
- (c) Specimen advertisements advertising the industry and not any particular car.
- (d) Complete information regarding electric apparatus and its operation and sale.
- (e) How central stations can co-operate with dealers and garagemen.
- (f) How boosting stations may be installed.
- (g) Why central stations should have an electric vehicle department.
- (h) Information to central stations as to what has been done in large cities regarding parking facilities.
- (i) How a booklet can be prepared for distribution to car owners, showing the location of garages and charging stations in the city and surrounding country.
- (j) Battery exchange methods now successfully used and how they operate.
- (k) Recommendations that central stations assist garagemen in getting together to establish uniform methods.

4—Central stations to be made familiar with the value of electric vehicle charging as an off-peak, long hour, low demand department of their business with a possible view to rate revision.

the use of an electric contains 50 cents toward advertising the use of current.

Garaging facilities, he stated, are inadequate, necessitating long drives from the home to the garage, and the public generally labors under delusions as to electric troubles. More extensive installation of apparatus and an educational propaganda were recommended.

"Boosting plugs," he said, "with coin attachments should be established in all large cities at country clubs, city clubs, amusement parks, pleasure resorts and popular roadhouses or inns, where an owner can obtain a boost for his battery the same as the gas car motorist buys gas." He cited that the Standard Oil Co. has spent a fortune in establishing filling stations and distribution, and that this sets a good example for a reasonable expenditure by the central stations. Power stations and sub-stations in small towns and along main highways should, he asserted, provide charging facilities for pleasure cars and trucks.

In every large city the central station should employ an expert battery man for inspection and promotion work, and reasonable rates during off-peak hours should be established. Legislation making the use of the electric more popular was urged.

Public officials and prominent men would be assets as car owners and sociability runs and tours should be promoted.

Central Stations Should Help

Central stations should enclose with their monthly bills to customers literature of an educational nature concerning the electric. Statements to business houses should include literature about trucks. He advocated the employment of a big man to head this development and propaganda work, and later introduced the resolution, which the session adopted.

G. D. Fairgrieve, of the Anderson Electric Car Co., dwelt upon the power of advertising in promoting the electric. He cited the ignorance that prevails among car owners regarding the electric, and told of the millions of dollars that have been spent in building up the gas car industry. The electric users, he stated, are repeat buyers, which is one of the best arguments as to the practicability and salability of the electric, provided it is once given the necessary start. Enumerating the different divisions that would be benefited, such as battery makers, central stations and others, he said there is to be co-operative combination for educational propaganda.

"To me," he illustrated, "this entire situation is not unlike the stage setting inside the fence of a baseball park. The manufacturers of electric cars correspond to the players. The central station and accessory manufacturers are the spectators. It is a well known fact that the bleachers can shout, applaud and boost a player and make a success of him, or they can knock the same player until he becomes one of the discards. We electric car makers need some shouting and boosting by someone besides ourselves."

Uncle Sam Says Motor Industry Can Help

Offer of Co-operation Is Accepted and Alfred Reeves Is Asked to Direct Outlined Work

NEW YORK, April 19—Offers of co-operation made by the automobile industry have been accepted by the Government.

The War Department recommends the immediate formation of as many voluntary motor truck, motor car and motorcycle companies as possible in all States, and particularly along the Atlantic, Gulf and Pacific coasts, as a measure of preparedness for any emergency that may arise, although it is confident it will not have to call for cars or trucks of citizen owners for regular army service.

The task of directing this work has been delegated to the Volunteer Motor Transport Committee, consisting of Alfred Reeves, manager of the N. A. C. of C., as chairman; A. G. Batchelder, A. A. A.; Coker F. Clarkson, S. of A. E.; Edward H. Broadwell, M. A. M.; Roderick Stephens, Motor Truck Club of America, and Shelby A. Falor, Federation of American Motorcyclists. This committee will operate under the Advisory Commission of the Council of National Defense.

The committee will co-operate also in the recruiting of competent drivers and mechanics for the Enlisted Reserve Corps of the Quartermaster's Department of the Army under the direction of Gen. H. S. Sharpe and Col. Chauncey B. Baker, of the Quartermaster's Corps at Washington.

Its work will be to organize volunteer motor companies in all States, and especially in cities near the sea coast. The committee will also obtain particulars of the roads for military purposes, especially with regard to their ability to carry heavy motor traffic.

Volunteer companies will include the necessary officers, drivers and mechanics, and will be used, when occasion requires, for quickly moving bodies of troops or supplies to particular points. Such service probably will extend over only a day or two at a time, but many of the men may later wish to enlist for military service during the war. Colonel Baker says that cars or trucks of citizen owners will not be required by the army as the quartermaster's office will be able to buy new equipment as fast as the new and bigger army is organized.

A volunteer motor transport reserve company, of which hundreds will be organized, will consist, in the case of trucks, of the following: A captain, who will have general supervision over the organization; one truck master, three assistant truck masters, one mechanic, two helpers, two cooks, one watchman and 33 chauffeurs. These men will bear titles from sergeant first

class to corporals and privates, and will have charge of an equipment of 27 cargo trucks, preferably of the 1½ and 3-ton sizes; one repair and kitchen truck, two oil and gasoline supply trucks and one motor car and one light repair truck. The personnel may be increased by adding assistant chauffeurs and cooks when needed.

Motor car and motorcycle companies will be organized along very similar lines, this form of organization and the regulations governing it being the same for volunteer companies as for motor companies in the Regular Army at present. Three motor companies will constitute a battalion with a major in command. For truck companies the preference is for 1½ and 3-ton trucks, although other types may be enlisted. All types of passenger cars may be included in the car companies.

Headquarters of the Volunteer Motor Transport Committee are at 7 East Forty-second Street, New York.

Ford Waives Tractor Patent

DETROIT, April 19—Henry Ford, at the request of the British Government, has waived the patent rights of his tractor to permit the British Government to manufacture them in large numbers. The request followed the British Government observations of action of the Ford tractors, now working 24 hours a day in English and French fields. Ford cabled specifications of everyone of the thousand parts in the tractor at his own expense to enable the government to proceed rapidly in their manufacture. The description of a single screw required several hundred words.

The success of the tractors in England hastens Ford's preparations in this country. He expects to have 30,000 in use in America before August 1. A large force of draughtsmen is now working at the Dearborn plant preparing diagrams and specifications to be submitted to manufacturers in all parts of this country, who will make parts from which the tractors can be assembled. Ford expects manufacturers to observe President Wilson's request for unselfish service and co-operation. A large bearing maker has informed him that he may have anything that he needs and the price can be settled afterwards.

Ford does not expect any remuneration from the British government. He is making a study of the Russian conditions, and expects to have tractors there soon. His tractors are being used for dragging plows and hauling, running saws and threshing separators and other purposes. The tractor develops 25 horsepower and runs on alcohol, gasoline or kerosene.

Krebs Increases Capital

CLYDE, OHIO, April 19—The Krebs Commercial Car Co. has increased its capital stock from \$100,000 to \$500,000. New York capital has been interested and the business will be increased. Officers of the company remain the same.

Thinks It Has Solved Car Trading Problem

Jackson Opens Used Car Market—Members Under \$300 Bond—Manager Buys Used Cars

JACKSON, MICH., April 21—Jackson dealers feel that they have solved their used-car problem by the use of a mutual used-car market. Seven weeks ago the dealers got together and formed a used-car association. Since then 102 used cars have been sold, the way cleared for new car sales, and sales efforts concentrated on new cars alone.

All but three of the fourteen dealers belong to the association, and each is under a \$300 bond. The Used Car Market is in a separate building, and is carried on as a separate business with its own organization.

The prospect with a used car is taken to the Used Car Market, and C. N. Nielson, the manager, gives the car a certain appraised value. Each of the dealers must stand by that value, and in turn Nielson agrees to sell the car within 30 days, and turn the money over to the dealer making the new car sale.

Should any dealer allow more than the appraised value, or throw in extras to close a sale, a grievance committee takes charge of the matter, investigates and fines the defaulting dealer any amount up to the \$300 of his bond. This tends to prevent sub-rosa price-cutting.

The used-car market establishes a resale price, depending upon the amount necessary to put the car in good condition, plus an additional profit of \$25. As the allowed price usually represents the actual value of the car, as the margin of profit is small, and the sales effort on used cars is concentrated, the used cars are kept moving. And as the dealer can take any car from the market, if it has not been sold within 30 days, a safeguard is provided whereby the used-car man is kept on the job, and the dealer can take his own car if not satisfied.

Philadelphia Helps Mobilization

PHILADELPHIA, April 19—At a joint meeting of the Automobile Trade Association and the Motor Truck Association of Philadelphia on April 10, 25 firms pledged themselves to the extent of contributing 58 automobiles and motor trucks to the services of the United States in the war. For this purpose both associations are acting in concert with the Home Defense Reserve. A committee was appointed to formulate plans for the organization and operation of the fleet, consisting of O. W. Doolittle, Foss-Hughes Co.; A. E. Maltby, Winton Co.; C. W. Lloyd, B. L. P. Co.; J. W. Florida, Locomobile Co.; J. C. Schwartz, Gomery-Schwartz Co.; George Simpson, B. F. Goodrich Co.; Robert F. Black, International Motor Co.

MOTOR WORLD

Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

A Summary of Used Car Sales Conditions

Columbus, Ohio, April 21.—The used car market during the past week has been pretty lively, although the sales are not up to normal according to some reports. War still seems to have some effect on the used car market and consequently sales are not as brisk as formerly. But normal conditions are rapidly coming and dealers with used cars do not anticipate any trouble in selling. Prices on used cars have been strong and no cutting of any consequence under usual prices has been reported.

Baltimore, April 21.—Used car business did not show very briskly during the past week, despite the fact that the classified department of the newspapers carried a greater volume of ads than during any previous period. Buyers were looking just for bargains and refusing to pay a fair amount for a good proposition. Dealers, it is conservatively estimated, have at this time more than \$250,000 worth of used cars. Selling was confined to isolated spots during the week.

Hartford, April 21.—Used car sales have tapered off during the past week and for this situation various causes are ascribed. In one of two instances the war is blamed, yet as a matter of fact the weather doubtless has more to do with it. There is a good demand for used cars and those dealers who feature this kind of trade have few com-

plaints to offer. Every indication points to a generally better price situation than a year ago.

Louisville, April 21.—There have been better weeks in the used car market, but during the past 7 days the sales were satisfactory. Some of the dealers who reported "no sales" acknowledged that they devoted little time to used cars because they were so busy selling new models. The demand for used Fords is very strong and owners have no trouble in selling their cars no matter how long they have been driven. This make of car, the dealers say, remains hardly an hour or so in the showroom.

Indianapolis, April 23.—Used cars have been selling briskly during the past week, and the situation is such as to lend some encouragement to dealers who have been compelled to make many trades in the selling of new cars. There has been a general movement here among dealers to stop cut-throat competition. The belief is expressed that this department eventually will accomplish much toward solving the used car problem. Companies engaged in the selling of used cars exclusively report that they have been doing a large credit business and that money is plentiful to be applied on the purchase of cars. Sales prices have been fairly uniform, and the men in used car depart-

ments are beginning to wager that they can tell what the owner of a used car has been offered by other dealers. This would not have been possible in Indianapolis a few months ago.

Philadelphia, April 21.—Sales fell off a little for two reasons. Some dealers report that it is difficult to get shipments of new cars in sufficient quantity and that, therefore, they are unable to take used cars in exchange. The other reason is the war. People who have the purchase of a used car in mind are hesitating and won't buy until they know definitely what effect the new \$7,000,000,000 war loan will have on the country and to what extent they will be affected by the proposed taxation on cars. At least one dealer reported that he had received cancellations from buyers who had grown timid of the situation.

Fargo, N. D., April 21.—Sales were few this week and will be until the seeding season is over, which will require another month.

Savannah, Ga., April 21.—A light sale of used cars was noticeable the past week, probably because dealers are not taking in used cars, except in few cases, as part payment on new cars. Most of the dealers are wary about accepting used cars now because of the fact that a general decrease in sales makes it hard to get rid of them.

THE figures in the tables are the prices brought by used cars sold during the past week. Most sales are quoted "As is." Where an asterisk (*) follows the price, it signifies the car has been overhauled; two asterisks (**) signify partial overhaul. Where more than one sale of a particular model has been reported, the prices have been averaged.

Albany

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK— D45	1916	800**	....	....	....
CADILLAC— 58	1917	2000**	....	....	....
CHANDLER— 17	1917	....	....	....	1000**†
FORD— T	1916	250	....	....	....
	1915	255	....	....	....
HUPMOBILE— K	1915	525	....	....	....
KNOX— 46	1913	460*	....	....	....
OLDSMOBILE—	1916	750*	....	....	....

†Four-passenger roadster.

ALBANY—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
REO— R	1915	500*	....	....	....
STUDEBAKER—	1914	....	400	....	....
	1915	450	....	....	....
MAXWELL— 25	1913	200	....	....	....

Austin, Texas

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
FORD— T	1916	300	....	....	....
	1915	260	....	....	....

AUSTIN, TEXAS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
STUDEBAKER—	1914	550	....	....	....
E.M.F.—	1912	125	....	....	....

Baltimore

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHANDLER— 17	1916	....	....	....	1050†
	1916	....	850	....	....
DODGE—	1915	400	....	....	....
KRIT— ....	....	250	....	....	....

†Four-passenger roadster.

BALTIMORE—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OVERLAND— 83T	1916	425	....	....	....
PULLMAN—	1916	400	....	....	....

Bridgeport

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK— C36	1915	....	....	500**	....
CADILLAC—	1914	550**	....	....	....
....	1913	635	....	....	....
FRANKLIN— 6	1915	1000**	....	....	....
HUDSON— 40	1916	1000*	....	....	1200*
40	1915	725*	....	825*	....
54	1914	....	750*	....	....
54	1913	650*	....	....	....
37	1913	....	....	450*	....
33	1912	400	....	....	....
OVERLAND— 83	1916	450**	....	....	....
83	1915	425**	....	....	....
....	1912	200	....	....	....
....	1911	....	....	175	....
REO—	1913	425	....	....	....
SAXON— F	1915	475	....	....	....

Brooklyn

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE— 4-38	1916	450	....	....	....
4-25	1915	250	....	275	....
BUICK— D45	1916	700	....	....	....
C37	1915	500	....	....	....
D53	1915	750	....	....	....
CADILLAC—	1916	....	1600**	....	....
....	1916	....	1300	....	....
....	1915	....	1575**	....	....
....	1915	....	850	....	....
....	1914	....	525	....	....
CHALMERS— 35A	1916	675	750	....	....
32B	1916	....	500	....	....
26	1915	450	....	....	....
32	1915	550	....	....	....
DORT—	1916	350	....	....	....
....	1915	250	....	....	....
DODGE—	1916	575	....	....	....
....	1915	480	....	....	....
FRANKLIN—	1916	1200	....	....	....
....	1915	950	....	....	....
....	1914	650	....	....	....
HAYNES—	1916	1000	1000	....	....
....	1915	650	650	....	....
....	1914	400	400	....	....
HUDSON— 6-40	1915	....	600	....	....
GRANT—	1916	500	....	....	....
HUPMOBILE— N	1916	800**	875**	800**	....
K	1915	525**	....	500**	....
H	1914	475**	....	475**	....
JEFFERY— 6	1916	650	....	....	....
4	1916	500	....	....	....
4	1915	325	....	....	....
MAXWELL— 25	1916	310	....	....	....
OAKLAND— 8	1916	1000	....	....	....
6	1916	550	....	....	....
4	1916	600	....	....	....
4	1915	500	....	....	....
OLDSMOBILE— 8	1916	800	....	....	....
4	1916	600	....	....	....
4	1915	425	....	....	....
OVERLAND— 83A	1916	367	....	....	....
83b	1916	412	....	....	....
75B	1916	412	....	....	....
86	1916	712	....	....	....
82	1915	400	....	....	....
81	1915	287	....	....	....
79	1914	275	....	....	....
MITCHELL—	1916	650	650	....	....
....	1916	850	850	....	....
....	1915	500	....	....	....
PAIGE—	1916	....	....	750	....
REO— 4	1916	600	....	600	....
6	1916	....	700	....	....
6	1915	....	550	....	....
4	1915	....	450	....	....
4	1913	150	....	150	....
4	1912	100	....	100	....

BROOKLYN—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
SAXON— 6	1916	450	....	....	....
4	1916	....	....	265	....
6	1915	475	....	....	....
4	1915	....	....	165	....
STUDEBAKER— 17-6	1916	....	600	....	....
17-6	1917	....	750	....	....
6	1915	....	450	....	....
4	1915	....	400	....	....
6	1914	....	400	....	....
4	1914	....	325	....	....

Chicago

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHALMERS— 35A	1916	850	....	....	....
6-30	1915	450	....	....	....
6	1916	400	....	....	....
FORD—	1913	....	....	150	....
HAYNES— 36	1916	1250*	....	....	....
34	1916	900	....	....	....
33	1915	....	750**	....	....
21	1912	175	....	....	....
HERFF-BROOKS—	1915	350	....	....	....
JEFFERY— 4-62	1916	883**	....	....	....
KING—	1916	650**	....	....	....
MAXWELL— 25	1916	450**	....	....	....
MITCHELL— 6-45	1915	....	700*	....	....
....	1914	....	....	325**	....
OVERLAND— 81	1915	350	....	....	....
REGAL—	1909	65	....	....	....
REO— 4	1916	600**	....	550	....
STUDEBAKER— 4	1915	....	....	400	....
WESTCOTT—	1912	....	....	250	....

Columbus

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHALMERS— 30	1913	150	....	....	....
CHEVROLET— H4	1916	500**	....	....	....
DODGE—	1916	575**	....	....	....
FORD— T	1915	200	....	....	....
....	1910	145	....	....	....
HUDSON— 40	1916	....	1000**	....	....
40	1915	....	850**	....	....
6-40	1914	....	750**	....	....
HUPMOBILE— 20	1912	....	....	125	....
MAXWELL— 25	1915	200	....	....	....
OVERLAND— 83	1916	500**	....	....	....
79	1916	....	....	325	....
PATTERSON—	1914	600	....	....	....
SAXON— 4	1916	....	....	275	....
6	1916	487	....	....	....
STUDEBAKER— 4	1916	....	450	....	....

Denver

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK— D44	1917	....	....	990*	....
D55	1916	....	1150*	....	....
D45	1916	975*	....	....	....
C37	1915	450	....	....	....
CADILLAC— 51	1915	....	1300*	....	....
4	1912	400*	....	....	....
CHEVROLET— 4-90	1916	325	....	....	....
H2	1914	....	305*	....	....
DODGE—	1916	650*	....	....	....
FORD— T	1916	....	....	275	....
T	1915	300*	....	....	....
T	1915	265	....	....	....
T	1914	235	....	....	....
HUDSON— SS	1916	....	1200*	....	....
6-40	1914	....	....	750*	....
....	1910	100	....	....	....
HUPMOBILE— 32	1914	....	....	475	....

DENVER—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
MAXWELL— 25	1916	427*	....	....	....
25	1914	325*	....	....	....
....	1912	75	....	....	....
OVERLAND— 85T	1917	500	....	....	....
83	1916	....	....	470	....
81	1915	400	....	....	....
71	1914	350	....	....	....
79	1914	335	....	....	....
69	1913	215	....	....	....
STUDEBAKER— 17-16	1917	....	875*	....	....
17-4	1916	....	575*	....	....
....	1915	475	....	....	....

Detroit

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1917	750	....	750	....
D55	1916	650	....	650	....
D45	1916	575	....	....	....
C54	1915	500	....	....	....
C24	1914	325	....	....	....
B55	1914	450	....	....	....
CADILLAC—					
....	1917	....	1550**	....	....
....	1916	....	1000**	....	....
....	1913	300	....	....	....
CHALMERS—					
35A	1917	600	675	....	....
32A	1916	400	....	....	....
6-40	1916	....	500**	....	....
6-48	1916	....	500	....	....
MS	1915	....	750**	....	....
6-30	1915	550	....	....	....
CHEVROLET—					
490	1916	350**	....	....	....
H2	1916	400**	....	....	....
H2	1915	350**	....	....	....
DODGE—					
....	1917	600**	....	....	....
....	1916	487**	....	....	....
....	1915	412**	....	....	....
DORT—					
....	1917	500**	....	....	....
....	1916	400**	....	....	....
....	1915	375**	....	....	....
HUDSON—					
SS	1916	....	900	....	....
6-40	1916	....	600	....	....
6-40	1915	....	550	....	....
6-40	1914	....	475	....	....
HUPMOBILE—					
32	1914	350**	....	....	....
KING—					
E	1916	800	....	....	....
MAXWELL—					
25	1916	375**	....	....	....
25	1915	300	....	....	....
MITCHELL—					
6-16	1916	....	700	....	....
OVERLAND—					
83	1916	400	....	....	....
75	1916	350	....	....	....
80	1915	400	....	....	....
86	1915	600	....	....	....
79	1914	275	....	....	....
OAKLAND—					
37	1915	375	....	....	....
OLDSMOBILE—					
43	1916	725	....	....	....
4	1915	450	....	....	....
6	1915	600	....	....	....
PAIGE—					
Frfd	1916	....	675	....	....
46	1916	....	825*	....	....
39	1916	775*	....	....	....
Frfd	1915	450	....	....	....
REO—					
6	1916	....	675	....	....
4	1916	537	....	....	....
6	1915	....	575	....	....
4	1915	450	....	....	....
4	1914	300	....	....	....
SAXON—					
6	1916	450**	....	....	....
4	1916	....	....	237**	....
6	1915	367**	....	....	....
4	1915	....	....	167**	....
STUDEBAKER—					
17-6	1916	....	575**	....	....
17-4	1916	....	400**	....	....
4	1915	400**	....	....	....
6	1914	....	350	....	....

Duluth					
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
4-37	1914	450	....	....	....
CADILLAC—					
....	1912	300	....	....	....
HUDSON—					
6-40	1916	....	700	....	....
SS	1916	....	1000	....	....
6-40	1915	750	....	....	....
....	1914	....	500	....	....
MITCHELL					
6-16	1916	900	....	....	....

DULUTH—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OVERLAND—					
83	1916	600	....	....	....
85	1916	700	....	....	....
86	1916	....	800	....	....
75	1916	450	....	....	....
....	1913	....	....	250	....
WINTON—					
....	1915	....	1500	....	....

Fargo

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
FORD—					
T	1916	270	....	....	....
T	1915	200	....	....	....
MAXWELL—					
25	1916	525**	....	....	....
CHALMERS—					
....	1916	900	....	....	....

Hartford

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
C24	1915	....	....	400*	....
29	1914	600	....	....	....
....	1913	225	....	150	....
36	1912	250	....	150	....
CADILLAC—					
....	1917	....	1800	....	....
....	1916	....	1500*	....	....
....	1913	....	....	450	....
....	1912	350	....	....	....
CHALMERS—					
30	1910	100	....	....	....
CHEVROLET—					
490	1916	365	....	....	....
COLE—					
4	1915	800	....	....	....
DODGE—					
....	1916	575	....	475	....
....	1915	....	....	450	....
ENGER—					
4	1912	250	....	....	....
FORD—					
T	1915	225	....	200	....
T	1914	....	....	187	....
T	1910	110	....	....	....
HUPMOBILE—					
N	1916	625**	....	....	....
K	1915	575**	....	....	....
OAKLAND—					
6	1916	600	....	....	....
OVERLAND—					
83	1916	450	....	....	....
75	1916	350	....	....	....
80	1915	550	....	....	....
81	1914	300*	....	....	....
PAIGE—					
....	1915	350	....	....	....
POPE-HARTFORD—					
....	1913	275	....	....	....
REO—					
4	1916	700*	....	....	....
4	1913	....	....	325	....
STUDEBAKER—					
4	1915	....	487	....	....
4	1912	200	....	....	....

Indianapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
AUBURN—					
4	1913	300	....	....	....
BUICK—					
37	1915	450	....	....	....
4	1915	....	....	500*	....
36	1914	450**	....	....	....
25	1914	375*	....	....	....
CADILLAC—					
53	1916	....	1350	....	....
....	1914	....	750*	....	....
CHALMERS—					
....	1914	....	350	....	....
....	1913	....	400**	....	....
COLE—					
8	1916	....	900	....	....
8	1917	....	1350	....	....
....	1913	400	....	....	....
EMPIRE—					
....	1915	412	....	....	....
FORD—					
T	1914	300	....	....	....
HAYNES—					
....	1914	....	400	....	....
HUDSON—					
....	1916	....	1200*	....	....
MAXWELL—					
25	1914	200**	....	....	....
OAKLAND—					
....	1912	....	....	175	....
OVERLAND—					
83	1916	450*	....	....	....
75	1916	425*	....	....	....
83	1916	450*	....	....	....
83	1915	450**	....	....	....
59	1912	165*	....	....	....
PREMIER—					
6	1914	....	350	....	....
REO—					
6	1916	900	....	900**	....
4	1915	550**	....	....	....

INDIANAPOLIS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
STUDEBAKER—					
17-4	1916	....	537**	....	....
17-6	1917	....	875**	....	....
6	1915	625**	....	....	....
STUTZ—					
....	1917	....	....	1000	....
WILLYS-KNIGHT—					
84	1916	....	....	....	1500*†
†Four-passenger roadster					

Jackson

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ABBOTT-DETROIT—					
K	1916	500	....	....	....
F	1915	....	....	350	....
K	1914	360	....	....	....
BRISCOE—					
24	1917	525	....	....	....
8B	1916	400	....	....	....
4B	1916	350	....	....	....
B	1915	275	....	....	....
BUICK—					
D34	1917	....	....	525	....
D44	1916	675	....	675	....
C24	1915	....	....	375	....
R24	1914	....	....	350	....
B55	1914	400	....	....	....
CADILLAC—					
53	1916	1200	....	....	....
8	1915	800	....	....	....
4	1914	525	....	....	....
CHALMERS—					
32B	1916	....	685	....	....
6-30	1916	....	550	....	....
6-40	1915	....	500	....	....
MS	1915	....	450	....	....
CHEVROLET—					
490	1916	350	....	....	....
H2	1915	450	....	....	....
H2	1914	250	....	....	....
DODGE—					
....	1917	575	....	....	....
....	1916	500	....	....	....
....	1915	400	....	....	....
....	1914	325	....	....	....
HAYNES—					
35	1916	....	1000**	....	....
33	1915	....	800**	....	....
28	1914	....	600**	....	....
HUDSON—					
SS	1916	....	925	....	....
6-40	1916	....	900	....	....
6-40	1915	....	750	....	....
6-40	1914	....	675	....	....
HUPMOBILE—					
N	1916	700	....	....	....
HK	1915	525	....	....	....
HA	1914	300	....	....	....
MAXWELL—					
25	1916	360	....	....	....
25	1915	300	....	....	....
25	1914	200	....	....	....
OAKLAND—					
32	1916	475	....	....	....
34	1916	600**	....	....	....
37	1915	375	....	....	....
43	1914	350	....	....	....
OVERLAND—					
75	1916	400	....	....	....
83	1916	475	....	....	....
81	1915	375	....	....	....
79	1914	....	....	175	....
PAIGE—					
36	1916	....	900	....	....
82	1915	....	700	....	....
86	1915	400	....	....	....
REO—					
....	1916	....	800	....	....
....	1915	....	700	....	....
....	1914	....	650	....	....
SAXON—					
4	1916	....	....	200**	....
S2	1915	550**	....	....	....
STUDEBAKER—					
17-4	1917	....	625*	....	....
17-4	1916	....	550*	....	....
17-6	1916	....	650*	....	....
4	1915	....	400**	350**	....
4	1914	....	325	....	....

Kalamazoo

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE—					
4	1915	375	....	....	....
BUICK—					
D44	1916	....	....	700	....
AB37	1914	....	....	200	....
29	1912	250	....	....	....
CADILLAC—					
53	1916	....	1550*	1550*	....
51	1915	....	1100*	....	....
....	1914	....	650*	....	....
....	1913	....	450*	500*	....
....	1913	437*	....	....	....
....	1913	367*	....	....	....
CHALMERS—					
6-30	1916	750**	....	....	....
MS	1915	....	500**	....	....
CHANDLER—					
....	1916	....	700	650	....
....	1915	....	660*	....	....

KALAMAZOO—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHEVROLET—					
H2	1916	475	....	....	....
490	1916	367	....	....	....
H2	1915	375	....	....	....
490	1915	325	....	....	....
DODGE—					
....	1916	450	....	....	....
....	1916	575**	....	....	....
....	1915	475	....	....	....
....	1915	525**	....	....	....
DORT—					
....	1916	360	....	....	....
FORD—					
T	1916	....	....	275	....
....	1915	200	....	....	....
HAYNES—					
35	1916	....	825	....	....
26	1914	....	575	....	....
HUDSON—					
54	1915	....	....	600	....
6-40	1915	....	550	....	....
33	1911	350*	....	....	....
MAXWELL—					
25	1916	400	....	....	....
25	1914	275	....	....	....
OAKLAND—					
6-32	1915	575	....	....	....
6-48	1914	....	350	....	....
OVERLAND—					
83	1916	400	....	....	....
75	1916	400	....	375	....
80	1915	475	....	....	....
81	1915	400	....	....	....
PACKARD—					
....	1909	200	....	....	....
PREMIER—					
....	1914	....	325	....	....
PAIGE—					
36	1915	375**	....	....	....
....	1914	300	....	....	....
REO—					
....	1916	....	750	....	....
4	1914	400	....	....	....
4	1912	200	....	....	....
SAXON—					
4	1916	....	....	250	....
SCRIPPS-BOOTH—					
....	1916	....	....	....	450
STUDEBAKER—					
17-4	1916	....	550	....	....
17-6	1916	....	600	....	....
4	1915	....	400	....	....
4	1913	250	....	....	....
30	1912	150	....	....	....
OLDSMOBILE—					
Sp.	1910	....	287	....	....
RAMBLER—					
....	1913	350	....	....	....

KANSAS CITY—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
PULLMAN—	1915	475*			
SAXON—	1916	700			
STUDEBAKER—	1917		750*		
17-6	1917		750*		
17-4	1915		550		
6	1914		400		
WILLYS-KNIGHT—	1916	900*			

Louisville

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CADILLAC—	1913	650			
DODGE—	1916			650	
FORD—	1917	312			
T	1916		270		
T	1915	200			
T	1912	100			
HUPMOBILE—	1916	785			
MAXWELL—	1916	500			
25	1915	275			
OVERLAND—	1916	450			
83					
REO—	1911	235			

Milwaukee

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—	1916			500	
CHEVROLET—	1916			345	
H2					
DODGE—	1916	650*		625*	
	1915	500*			
FORD—	1916	300			
T					
JEFFERY—	1915	600			
4	1915		750		
4	1914	500			
KISSEL—	1916	1000*			
6	1914	750*			
4	1913	435*			
MAXWELL—	1916	475			
25					
PAIGE—	1915		650	450	
STUDEBAKER—	1916				525
17-4					
WHITE—	1912	250			
WILLYS-KNIGHT—	1916	750			
4					
WINTON—	1915	1600			
21A	1914			800**	
20					

Minneapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—	1912			275	
CADILLAC—	1916		1450		
53	1916		1650*		
51	1915		1350*		
CHALMERS—	1916		775*		
M6	1912	250*			
CHEVROLET—	1915			450*	
H2½					
DODGE—	1916			650**	
	1915	500*			
FORD—	1917	375			
T	1916	235		250	
T	1914	250			
T	1913	150		175	
HUDSON—	1915		700		
6-54					
HUPMOBILE—	1916	600			
N					
JEFFERY—	1915	525**			
J4					
MAXWELL—	1916	460			
25	1915	400**			
OVERLAND—	1916	525*		425	
83	1915	360			
80	1915	450			
79	1914	525*		385	
REO—	1916	1015			
M	1914	400			
R					

MINNEAPOLIS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
SAXON—	1916	650			
S2	1915	400			
STUDEBAKER—	1916		900*		
17-6			550		
6	1915	475**			
4	1913	225			

New York

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—	1916	500			
D45	1915			300	
C24					
CADILLAC—	1914		400		
	1913	250			
	1910		100		
CHALMERS—	1917	700			
35B	1916	550			
35A	1916		500		
32B	1915	400			
32A	1915	300			
26	1914	275			
24	1913	150			
18	1913	125			
17					
CHEVROLET—	1916	500*			
H4	1916	400*			
490	1915	275			
H2					
COLE—	1915	550			
	1912	300			
CROW-ELKHART—	1917	600			
DODGE—	1916	575			
	1915	450			
DORT—	1917	400			
	1916	350			
FORD—	1916	212			
T	1915	175			
T	1914	150			
HAYNES—	1914	450			
28	1913	300			
24					
HUDSON—	1916		1500*		
40	1916		1250*		
SS	1916		800*		
6-40					
HUPMOBILE—	1916	850			
N	1914	450			
32	1913			275	
NATIONAL—	1916	1200**†			
IB		1000**			
†Four-passenger touring.					
OAKLAND—	1916	612			
32	1913	150			
OVERLAND—	1916	430*			
75	1916	325			
83B	1916	325			
83	1915	625*			
80	1915	400			
82					
PAIGE—	Frfd.	1916		850	
Frfd.	1915			750	
REO—	M6	1916		750	
R4	1916	550			
St.	1916			650	
SAXON—	14	1916		375	
	1915	350			
SCRIPPS-BOOTH—	1915			300	
STUDEBAKER—	17-6	1916		775	
16-4	1916		500		
16-6	1916		625		
17-4	1916		625		
4	1915			350	
6	1913		175		
MITCHELL—	1917		950		
	1916		700		
	1915		500		
	1914		300		
	1913		175		
OLDSMOBILE—	43	1916	650	700	
4	1916	725	750		
55	1915		425		
KING—	E	1916			990
D	1915	775			
C	1914			475	
B	1913	350			
MAXWELL—	25	1917	500		
25	1916	305			

Oklahoma City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—	1916			1050	
D44	1914	450			
C25					
CHALMERS—	1916	750			
35A	1915	600			
6-40					
INTERSTATE—	1916	600			
	1915	500			
MAXWELL—	1916	400			
	1915	300			
REGAL—	1912	90			
SAXON—	1916	600			
STODDARD-DAYTON—	20	1910		150	

Omaha

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ABBOTT-DETROIT—	1913	175			
BUICK—	1916	675**			
D45	1915	550**			
C37					
ENGER—	6	1915	150		
FORD—	T	1917	350		
T	1914	175			
HUDSON—	37	1914	600*		
INTER-STATE—	T	1915	650*		
MAXWELL—	25	1916	425**		
25	1915	275*			
OAKLAND—	1913	225			
OVERLAND—	75	1916	537**		
83	1916	550**			
PAIGE—	6-46	1915		850	
REO—	R	1916		600	
R	1914	500			
STUDEBAKER—	4	1915		425**	
	1913			400*	

Peoria

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CADILLAC—	1914	700			
	1913	385			
	1912	320			
	1910	215			
	1909	250			
CHALMERS—	1912	325			
GRANT—	1916	425			
HALLADAY—	1915		550		
HUPMOBILE—	N	1916	750		
HA	1914			550	
WARREN-DETROIT—		1912	160		

Philadelphia

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—	D36	1914		385**	
R25	1914	335			
DODGE—		1916	550		
FORD—	T	1916	225		
FRANKLIN—	8	1916	1375		
HAYNES—	34	1913	175		
HUDSON—	6-40	1915		650	
KING—	D	1915			700*
MERCER—	2-73	1915		550	
OAKLAND—	35	1913		237	
OVERLAND—	83A	1916	450**		
83B	1916	525*			
86	1916	750*			
75	1916	400*			
80	1915	412**			
79	1914	250			
59	1912	200*			
PAIGE—		1917		1150	
		1916	800		
		1914	500		
REO—	R	1916	675		
R	1914	425			

PHILADELPHIA—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
SCRIPPS-BOOTH—					
1915	1915	....	....	425	....

Pittsburgh

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
24	1915	475	....	....	....
30	1913	....	....	225	....
30	1913	....	....	250	....
CADILLAC—					
51	1915	800	....	....	....
CHALMERS—					
6-30	1917	....	....	....	650
CHANDLER—					
1917	1917	....	1000	....	....
1915	1915	665	....	....	....
COLE—					
4	1913	375	....	....	....
DODGE—					
1916	1916	600	....	500	....
DORT—					
1916	1916	390*	....	....	....
FORD—					
T	1916	275	....	....	....
HUDSON—					
6-40	1915	....	650	....	....
6-40	1914	550	....	....	....
MAXWELL—					
25	1916	300	....	....	....
MICHIGAN—					
4	1913	212	....	....	....
MITCHELL—					
6-16	1916	....	950	....	....
OVERLAND—					
79	1914	262	....	....	....
OAKLAND—					
32	1916	....	....	500	....
43	1914	300**	....	....	....
43	1913	450	....	....	....
OLDSMOBILE—					
8	1917	1000	....	....	....
OVERLAND—					
83B	1916	475	....	....	....
PAIGE—					
6-46	1916	837	....	....	....
4	1915	350*	....	....	....
4-36	1914	400	....	....	....
REO—					
6	1916	800**	....	....	....
4	1914	....	....	400	....
STUDEBAKER—					
17-4	1916	....	600	....	....
4	1915	425	....	....	....
6	1914	500*	....	....	....
STUTZ—					
R	1916	....	....	1350	....
VELIE—					
6	1916	550	....	....	....

Providence

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
FORD—					
T	1916	250**	....	230**	....
T	1915	250**	....	230**	....
T	1914	175**	....	150**	....
BUICK—					
1915	1915	....	750**	....	....
CADILLAC—					
53	1916	....	1650*	....	....
51	1915	....	1200*	....	....
....	1914	....	650*	....	....

PROVIDENCE—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHALMERS—					
6-30	1916	....	....	....	850*
DODGE—					
1916	1916	....	....	550*	....
DORT—					
1915	1915	475*	....	....	....
MARION—					
1911	1911	....	....	150	....
OVERLAND—					
83	1916	535*	....	....	....
STUDEBAKER—					
17-6	1916	....	700	....	800*
17-4	1916	....	600	....	....
....	1913	....	250**	....	....

St. Louis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	....	725	....	....
DODGE—					
1916	1916	560	....	....	....
1915	1915	500	....	....	....
FRANKLIN—					
34	1914	1050*	....	....	....
HUDSON—					
5-40	1916	....	950*	....	....
6-54	1915	....	1000*	....	....
6-40	1915	....	850*	....	....
6-40	1914	....	775*	....	....
HUPMOBILE—					
1916	1916	950	....	....	....
1914	1914	600	....	....	....
MITCHELL—					
4	1914	325	....	....	....
OVERLAND—					
85	1917	700	....	....	....
75	1916	700*	....	....	....
83	1916	500*	....	....	....
OLDSMOBILE—					
43	1916	700	....	....	....
42	1915	600	....	....	....
REO—					
6	1916	800*	....	....	....
4	1916	600*	....	....	....
4	1914	450*	....	....	....
4	1913	350*	....	....	....
STUDEBAKER—					
17-6	1917	725*	....	....	....
17-6	1916	....	....	500*	....
4	1914	455**	....	....	....
4	1912	275**	....	....	....

San Francisco

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	....	....	900*	....
C25	1915	525*	....	....	....
B45	1917	1000*	....	....	....
B37	1914	525	....	....	....
CHALMERS—					
MS	1915	....	900	....	....
DODGE—					
1916	1916	510	....	....	....
HUDSON—					
SS	1916	....	1300*	....	....
6-40	1915	....	825*	....	....
HUPMOBILE—					
1915	1915	....	....	600*	....
KISSEL—					
4-36	1915	750*	....	....	....
MAXWELL—					
25	1916	337	....	....	....

SAN FRANCISCO—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OVERLAND—					
83	1916	550	....	....	....
80	1915	500	....	....	....
79	1914	375	....	400	....
45	1912	....	....	110	....
STUDEBAKER—					
17-4	1916	....	700	....	....

Savannah

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
1912	1912	225	....	....	....
DODGE—					
1916	1916	560	....	....	....
FORD—					
T	1914	275	....	....	....
OVERLAND—					
1913	1913	225	....	....	....

Seattle

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ABBOTT-DETROIT—					
1916	1916	....	1125	....	....
APPERSON—					
4-45	1914	550	....	550	....
CADILLAC—					
51	1915	....	1550*	....	....
....	1914	875*	....	....	....
....	1913	625*	....	....	....
CASE—					
1912	1912	400	....	....	....
CHALMERS—					
1914	1914	450	....	....	....
30	1910	255	....	....	....
CHEVROLET—					
490	1916	457	....	....	....
DETROITER—					
1915	1915	250	....	....	....
FLANDERS—					
1911	1911	170	....	....	....
FORD—					
T	1916	300*	....	....	....
T	1915	275*	....	....	....
T	1914	250*	....	....	....
T	1912	175*	....	....	....
HAYNES—					
1914	1914	....	875	....	....
HUDSON—					
6-54	1915	....	850	....	....
METZ—					
1915	1915	400	....	....	....
OAKLAND—					
6	1916	650	....	....	....
42	1912	100	....	....	....
OLDSMOBILE—					
42	1915	....	....	700	....
OVERLAND—					
83	1916	400	....	....	....
81	1916	....	....	450	....
83	1915	550*	....	....	....
80	1915	575*	....	....	....
STUDEBAKER—					
17-6	1917	....	875**	....	825**
....	1915	650	....	....	....
....	1913	300*	....	....	....

Urbana, Ill.

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	600	....	....	....
C24	1915	....	....	350**	....

Milwaukee Holds Congress of Used Cars

MILWAUKEE, April 21—Milwaukee introduced a new idea into the motor car industry on Friday, April 20, when the Milwaukee Automobile Dealers' Association opened its first annual Used Car Congress, an exclusive exposition of used cars, in the Auditorium, which has been the home of Milwaukee motor shows for 9 years. It was the first cumulative effort of dealers in any one city in the United States to market their taken-in-exchange vehicles, and thus far the experiment is very much of a success. The show will run until Thursday night, April 26.

Eighteen Milwaukee dealers out of the 45 comprising the M. A. D. A. are exhibiting. Originally, twenty-three dealers took space, but the preliminary advertising of the event resulted in such a

stimulation of the demand for used cars that five dealers found themselves without any used cars and thus were obliged to relinquish their space.

More than 2000 people visited the show the first day. From the formal opening at 1 o'clock on Friday afternoon, April 20, until closing time, 10.30 p. m., there was a constant stream of visitors. Actual sales on the first day numbered 21, and not one was under \$500.

The highest priced car at the show is a Packard Twin Six, Model 2, 35, held at \$1,800. A 1916 Winton big six at \$1,750 ranked second for price. There are 85 to 90 cars on the floor at one time, and about 33 per cent are listed at less than \$500.

Coast Distributer for Sexton

LOS ANGELES, April 21—E. G. Sherman has secured the distributing rights for Sexton castor motor oil in California, Nevada and Arizona.

Montreal's Used Car Show Promises Well

MONTREAL, April 23—The demand for space for the first annual Used-Car Show of Eastern Canada is so large that arrangements have now been made by the Montreal Automobile Trade Association to hold this show in the Montreal Arena, thus giving a larger space for exhibits. The original date has also been altered and the show is now fixed for June 20 to 27, thus giving purchasers a chance to become acquainted with their purchases in time to get away to the country for the Dominion Day holiday, July 1.

Even at this early date it is assured that practically every make of car will be represented on the floor. In addition, motor cycles, used motor boats and the usual large array of accessories will be exhibited.

Specifications
of the
Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Governor	Wheelbase	Tires	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT 6-44	6-31x4 25.3 Remy	Stumb	Remy	Stumb	DP 3 122 32x4	SS	1195	11250	1195	1495	1820	...	...	...	...	...	...
ALLEN 6-44	4-31x5 22.5 Wetha	Stumb	Wetha	Stumb	C 3 112 32x3	SS	1895	895	...	1175	1195	...	...	...	...	...	1195
AMERICAN SIX 6-31x5	21.6 G & D	Zenith	G & D	Zenith	D 3 122 32x4	SS	...	1285	...	...	...	...	...	...	...	...	...
AMS-STERLING 6-31x5	15.6 Boech	Stumb	Boech	Stumb	DP 3 110 30x3	SS	...	...	...	...	...	...	...	...	...	...	...
ANDERSON 6-31x4	25.4 Wetha	Own	Wetha	Own	DP 3 120 33x4	SS	1275	1250	1250	...	...	...	...	...	...	...	...
APPERSON 6-31x5	29.4 Remy	Rafid	Bijur	Rafid	DP 3 130 34x4	SS	1750	1600	1750	...	...	...	...	...	...	...	...
6-17 6-31x5	31.2 Remy	Johnson	Bijur	Johnson	DP 3 130 35x4	SS	2000	...	2000	...	...	...	...	...	...	...	...
AUBURN 6-31x5	23.4 Remy	Rafid	Remy	Rafid	DP 3 120 34x4	SS	1145	1145	1145	...	...	...	...	...	...	...	...
6-39 6-31x5	29.4 Delco	Rafid	Delco	Rafid	DP 3 120 35x4	SS	...	11535	1535	...	...	...	...	...	...	...	1785
AUSTIN 6-31x5	39.6 Delco	Stumb	G & D	Stumb	DP 3 120 34x4	SS	3750	3750	4000	4550	4950	5250	...	...	...	...	...
Hy-King 12-21x5	22.5 Dixie	Zenith	G & D	Zenith	DP 3 120 34x4	SS	2200	2350	12275	...	...	...	...	...	...	...	3900
BIDDLE 4-31x4	25.3 Remy	Stumb	G & D	Stumb	DP 3 120 34x4	SS	...	1250	...	...	...	...	...	...	...	...	...
BOUR-DAVIS 6-31x4	25.3 Remy	Stumb	G & D	Stumb	DP 3 120 34x4	SS	...	16500	...	...	...	...	...	...	...	...	...
BREWSTER 4-4 x5	25.6 Boech	Zenith	U.S.L.	Zenith	DP 3 125 34x4	SS	...	...	...	...	7500	7700	...	...	...	...	...
BRISCOE 4-31x5	16.3 Conn	Mayer	Splitdorf	C 3 105 30x3	QD	850	725	725	...	...	...	...	...	...	...	...	...
B4-24 8-38	23.1 Remy	Zenith	Apico	C 3 114 32x3	QD	...	11015	1045	...	...	...	...	...	...	...	...	...
4-38 4-31x5	18.9 Remy	Mayer	Apico	C 3 114 32x3	QD	...	1845	845	...	...	...	...	...	...	...	...	...
BUICK 4-31x5	18.2 Delco	Marvel	Delco	C 3 106 31x4	C	...	660	675	...	...	...	...	...	...	...	...	...
D-4-34x36 4-31x4	25.3 Delco	Marvel	Delco	C 3 115 34x4	SS	...	1040	1070	...	11440	1835	...	...	...	...	...	...
6-44-47 6-31x4	27.3 Delco	Marvel	Delco	DD 3 124 34x4	SS	...	...	...	...	...	...	...	...	...	...	...	...
E-49 6-31x4	31.2 Delco	Own	Delco	D 3 122 37x5	SS	...	12240	...	2240	2040	...	...	...	...	...	...	...
CADILLAC 8-31x5	31.2 Delco	Own	Delco	D 3 122 37x5	SS	...	...	...	...	...	...	...	...	...	...	...	...
55 4-31x5	21.0 Conn	Rafid	A-Lite	C 3 120 34x4	QD	...	11190	...	1190	...	...	...	...	...	...	...	...
CASE 4-31x5	27.3 Boech	Rafid	G & D	D 3 123 34x4	SS	...	11385	...	1385	1985	2635	1985	...	...	...	...	...
CHALMERS 4-31x5	25.4 Remy	Stumb	Wetha	DP 3 115 32x4	SS	...	1250	1250	1350	1625	1850	2550	...	...	...	...	...
6-30 4-31x4	25.4 Remy	Stumb	Wetha	DP 3 115 32x4	SS	...	...	...	...	...	...	...	...	...	...	...	...
CHANDLER 6-31x5	27.3 Boech	Rafid	G & D	D 3 123 34x4	SS	...	...	...	...	...	...	...	...	...	...	...	...
CHEVROLET 4-31x4	21.7 Conn	Zenith	A-Lite	C 3 102 30x3	C	...	535	550	...	...	...	...	...	...	...	...	...
4-90 4-31x4	21.7 Conn	Zenith	A-Lite	C 3 108 32x3	SS	...	890	800	...	...	...	...	...	...	...	...	...
F6-F2 4-31x4	36.45 Conn	Zenith	A-Lite	C 3 120 34x4	SS	...	1385	1385	11385	...	...	...	...	...	...	...	625
D 8-40 8-31x4	39.2 Delco	Stumb	Delco	C 3 127 35x4	SS	...	11795	...	1795	2295	...	...	...	...	...	...	...
COLE 4-31x4	25.4 Remy	Stumb	Wetha	DP 3 115 32x4	SS	...	...	...	...	...	...	...	...	...	...	...	...
CROW-ELKHART CE-33-36	19.6 Conn	Carter	Dyneto	D 3 114 32x3	SS	...	1895	845	...	...	...	...	...	...	...	...	985
6-31x5	33.8 Wetha	Zenith	Wetha	D 3 127 34x4	QDR	...	12800	2800	2800	3800	4000	...	...	...	...	...	...
DANIELS 6-31x5	29.4 Delco	Stumb	Delco	C 3 119 34x4	...	...	1295	1295	1295	1985	1795	...	...	...	...	...	...
DAVIS H & I 6-31x5	25.4 Remy	Stumb	Delco	C 3 124 34x4	...	...	...	1895	1895	...	...	...	...	...	...	...	1985
6-31x5	25.4 Remy	Stumb	Delco	C 3 124 34x4	...	...	...	...	...	...	...	...	...	...	...	...	...
DETROITER 6-45	25.2 Conn	Ball	A-Lite	D 3 119 33x1	83	...	11257	1257	...	1925	...	...	...	...	...	...	...
6-45 6-31x4	22.5 Boech	Rafid	U.S.L.	D 4 120 35x3	QD	...	11135	...	1210	140	...	...	...	...	...	...	1450
DIPATCH FLYER 4-31x5	16.9 Conn	Carter	Dyneto	C 3 112 32x3	83	...	...	...	...	...	...	...	...	...	...	...	...
DOBLE 2-27 15x4	double-acting steam engine	Boiler pressure 600-lbs.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
DODGE BROTHERS 4-31x4	24 Delco	Stewart N.E.	D 3 114 32x3	S	...	...	835	835	...	1265	1265	...	...	...	...	...	1000
DORRIS 6-4 x5	38.4 Boech	Stumb	Wetha	D 8 108 36x4	SS	...	...	...	2475	3250	3350	3475	...	...	...	...	...
I-B6 4-31x5	16.9 Conn	Carter	Wetha	C 3 105 30x3	QDC	...	1725	725	...	...	1095	...	...	...	...	...	...
DORT 9 4-31x5	16.9 Conn	Carter	Wetha	C 3 105 30x3	QDC	...	...	...	...	...	...	...	...	...	...	...	...

[illegible]

ABBREVIATIONS—"A.C." Allis-Chalmers, "L.N." Leece-Neville, "Tltn" Tillotson, "Atomizer" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myera. NOTE— $37\frac{1}{4} \times 5\frac{1}{2}$ " means that the rear tires are $37 \times 5\frac{1}{2}$, and the front are smaller. Detachable top, 300x, means \$300 extra.

Sunderman Adds a Foundry

NEWBURGH, N. Y., April 20—The Sunderman Corp. will open a brass foundry in 3 weeks, employing twenty to twenty-five men. The company's business this year, it is stated, will amount to approximately 200,000 carbureters. At present the output is limited to the amount of brass castings that can be purchased already made, which does not meet the demand. The new building will be 27 x 100, three-story, and of brick structure. Only the first floor has been leased. The foundry will have a capacity of 1000 castings a day, and later will reach 3000.

N. A. C. C. Men on Industrial Board

NEW YORK, April 21—Charles Clifton, president of the National Automobile Chamber of Commerce, and John Willys have become representatives of the N. A. C. C. on the National Industrial Conference Board, which is composed of national organizations of manufacturers for the consideration of matters affecting industrial development. This body has also been organized with a view to presenting to the public and legislative bodies the business man's side of important questions.

Cincinnati to Buy War Cars

CINCINNATI, April 19—Business men of the Queen City have offered to raise money by public subscriptions for the purchase of a motor ambulance, four 2-ton trucks, seven automobile kitchens, six

light touring cars and two motorcycles for the use of the First Regiment of the Ohio National Guard, which is preparing to mobilize for war service. The war department has been asked if the command can accept the donations.

Flags on All Cole Cars

INDIANAPOLIS, April 19—An American flag with every car is the latest patriotic step taken by the Cole Motor Car Co. Every car that leaves the Hoosier plant has the national emblem in a prominent place on the windshield and thousands of these banners have been sent to Cole distributors and dealers in every city so that every owner of a Cole car may procure one for the asking.

Gorey Buys Chalmers 40 Parts

NEW YORK, April 19—J. C. Gorey & Co., which carries in stock parts to fit over forty makes of cars, has purchased the remaining Chalmers forty motor parts from the American and British Mfg. Co., Bridgeport, Conn. This, together with the Herreshoff, gives the Gorey concern control over all motors and parts manufactured by the American and British company.

Offer Indianapolis Speedway for War

INDIANAPOLIS, April 20—Use of the Indianapolis Motor Speedway as a training station for army aviators is now practically assured. James A. Allison, secretary and treasurer, last week re-

ceived a letter from the War Department asking when it would be convenient for army officers to inspect the grounds. Allison replied that the grounds could be inspected at any time and that he would hold himself in readiness to fulfill the promise of the speedway management to turn the property over to the uses of the government to start a training station for aviators. It is not known when the grounds will be inspected.

New Peters & Herron Factory

COLUMBUS, O., April 20—Peters & Herron Dash Co., which manufactures invincible seat covers, tire covers, etc., is building a one-story factory addition, 65 x 100, which will double the size of its plant.

Tisch Company Reorganized

GRAND RAPIDS, MICH., April 20—Julius Tisch, who recently was elected city commissioner, has sold his stock in the Tisch Auto Supply Co. to Emil Tisch and has resigned as president and director of the company. The new officers are: President, Emil Tisch; vice-president, W. B. Dean; secretary, R. H. Cryder; treasurer, E. E. Fehsenfeld. The directors are the officers and E. J. Herrmann.

Bell Opens Export Office

NEW YORK, April 23—The Bell Motor Car Co., York, Pa., has opened an export office at 11 Broadway.

Coming—THE SHOW CALENDAR—Events

Chicago, Ill.	Used Car Show, Coliseum.....	May 5-13
	Chicago Automobile Trade Assn.	
Montreal, Can.	Used Car Show, Coliseum.....	June 20-27
	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Spokane, Wash.	Interstate Fair.....	Sept. 2-9
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C.	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Los Angeles, Cal.	Los Angeles to Salt Lake City, Utah.	April
Unlontown, Pa.	Universal Trophy and Stock Car Races, Unlontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 19
Cincinnati, O.	250-mile Race.	May 30
Unlontown, Pa.	Championship Races, Unlontown Speedway Assn.	May 30
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.	Championship.	June 9
Detroit	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.	Race.	June 23
Unlontown, Pa.	Championship Races, Unlontown Speedway Assn.	July 4
Omaha, Neb.	Championship.	July 4
Tacoma, Wash.	Championship.	July 4
Visalia, Cal.	Road Race.	July 4

Spokane	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.	Hill Climb.	July 14
Des Moines, Ia.	Championship.	July 14
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.	Intercity Reliability.	July 17-19
Intercity Reliability	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J.	Track Race.	Aug. 17
Elgin, Ill.	Road Race.	Aug. 18
Unlontown, Pa.	Championship Races, Unlontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship.	Sept. 3
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb.	Sept. 8
Providence, R. I.	Championship.	Sept. 15
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
New York	Speedway Races.	Sept. 29
New York, N. Y.	Championship.	Sept. 29
Unlontown, Pa.	Speedway Races.	Sept. 30
Unlontown, Pa.	Championship Races, Unlontown Speedway Assn.	Oct. 6
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.	Race.	Oct. 13
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13
New York, N. Y.	Race.	Oct. 27

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 5

New York, May 2, 1917

Ten cents a copy
Two dollars a year



The illustration features a large Miller tire in the foreground on the left, with the brand name 'MILLER' visible on its sidewall. In the background, a vintage car is crossing a rustic wooden bridge over a stream. Two people are standing near the car. The scene is set in a rural landscape with trees and a fence.

Many a tire dealer has burned his bridges before him by getting hooked up with the wrong tire. But the dealer who ties up to

Miller
GEARED-TO-THE-ROAD
TIRES

An unusual tire backed by an unusual selling plan that makes money for dealers. Your territory may be open.

It costs nothing to get the details. Write for them.

rides to prosperity over the indestructible bridge of customer satisfaction.

Miller Tires are always good tires because the Miller Method of vulcanizing retains all of the natural vegetable wax and oil of the cotton fabric, the backbone of the tire.

The Miller Rubber Company, AKRON, O.

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Advertisers' Index—Next to Last Page



Van Sicklen

ELGIN

SPEEDMETERS

Half a Century's Experience
as Watchmakers Back of
Every Instrument

Record changes of speed instantly
not after 1000 or more feet of travel

|||

Service Stations in practically every city in which Van Sicklen equipped cars are marketed

*The Van Sicklen Company — Elgin Illinois
Factory — Elgin National Watch Co.*

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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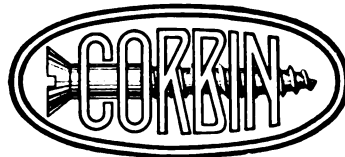
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When Time Counts

The thoroughness of our organization together with the size and facilities of our plant assure prompt delivery of SAE Standard Cap Screws, SAE Semi-Finished Nuts, SAE Castellated Nuts, as well as



Automatic Screw Machine Products

When time is an important factor with you it would be well to remember this fact.

Remember! When placing an order with the Corbin Screw Corporation you are placing it with an organization qualified both by experience and capacity to fill orders in the shortest possible time with products of the highest quality.

We shall be glad to submit quotations and advice on delivery upon receipt of blue prints and specifications.

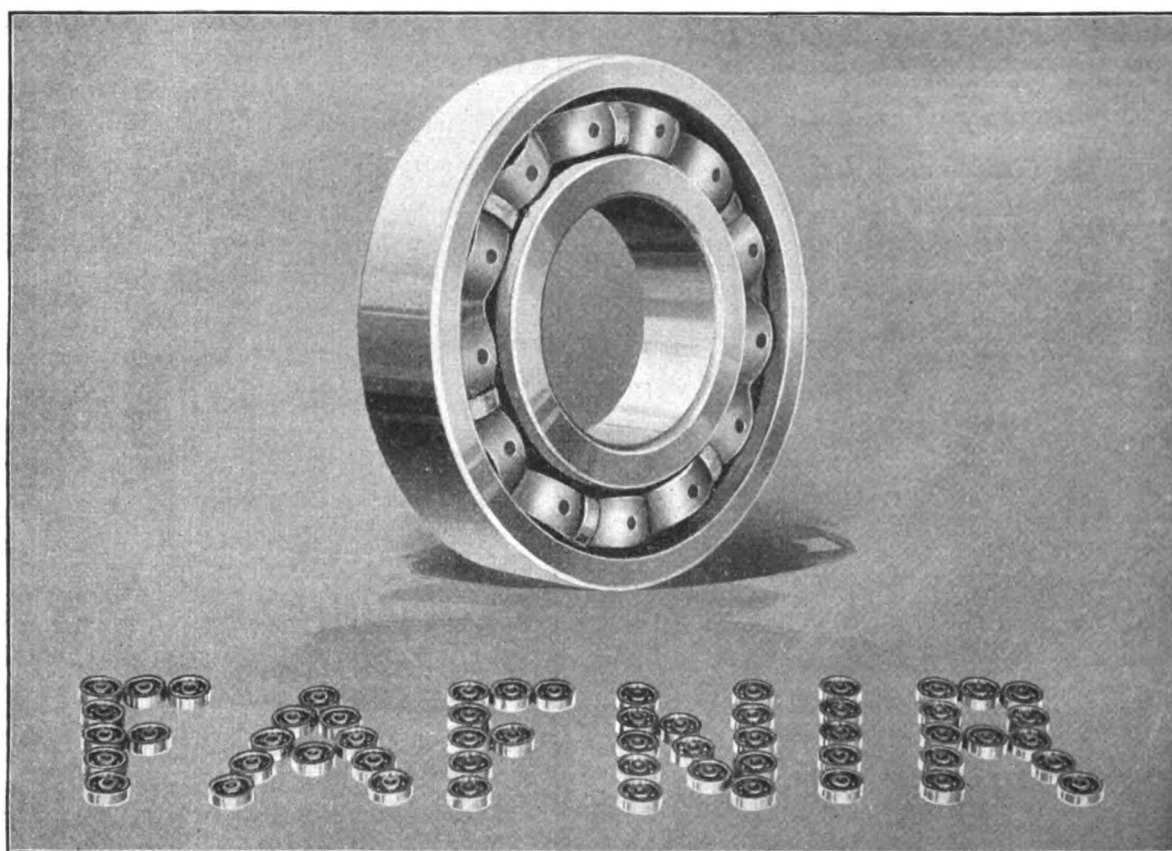
We also manufacture Cap and Set Screws, US threads, Machine Screw standard ASME, Machine Screw Nuts, Wood Screws, Stove Bolts, Tire Bolts, Thumb Screws, Thumb Nuts, etc.

The Corbin Screw Corporation

The American Hardware Corporation, Successor
 NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia

Makers of Corbin-Brown Speedometers



Distributors

To a limited number of Jobbers or Dealers in territory not already closed, we are able to offer an exceptional opportunity for the exclusive agency of

Fafnir Ball Bearings

Kindly write us fully concerning the territory which you cover and your prospects for selling Fafnir Ball Bearings. Upon receipt of this information we shall be glad to state our proposition in detail.

The Fafnir Bearing Company

(Conrad Patent Licensee)

New Britain, Connecticut

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, May 2, 1917

No. 5

Sane Patriotism



THE SANE DEALER assures volumes of smoke from the chimneys of the industry, no let-up of factory activity. "Our bit" right now is to keep up "business as usual" and stand ready to answer any call our country makes upon us.



THE MOTOR MART is a one-story building well out Woodward Avenue, the main spoke in Detroit's wheel-like arrangement of streets. The building is covered with advertising signs and smacks of the bargain sale at all points

How to Sell 170 Used Cars a Month

LEE CUSON did this in Detroit. In this story is a big business-building thought for every dealer who has used cars to sell. This story is called especially to the attention of the managers of used car departments.

LEE CUSON owns the Motor Mart in Detroit. He handles used cars only. Sales last month totaled 170 cars. It is a successful business—brimful of powerful lessons for used car dealers everywhere.

Cuson secures motor cars from dealers in Michigan and neighboring states by an appraisal and consignment method. He issues a leather loose leaf book to the dealers and publishes monthly sheets bearing the latest used car prices. The book is loaned and the monthly price sheet service is sold for \$10 a year.

Cars are classified for condition as:

Class A—Bad mechanical condition requiring general overhauling, shabby top, bent fenders, poor upholstery, no paint, tires good for less than 1000 miles.

Class B—Fair mechanically, passable upholstery and top, worn and dull finish, tires good for 1000 miles.

Class C—Probably used for demonstration purposes, run about 5000 miles and retired with tires good for 2500 miles; mechanically good, paint fair.

Class D—Cars nearly new and run about 1000 miles.

The dealers bring the cars to the Motor Mart to be sold and state the prices they must receive less the charges for polishing, washing, replenishing of tanks, and whatever repairs they instruct Motor Mart to make. Cuson adds an

amount to this price and sells the car for the total, thus making his profit. Immediately following the sale of a used car the dealer receives a check for the net amount due him. Last year 3872 cars were left with the Motor Mart on this basis.

The store is small—40 x 50—with a large open yard adjoining. Its working force comprises Cuson, a bookkeeper and assistant, a sales manager and four salesmen, a porter and assistant.

Cuson started the business 18 months ago. His first month witnessed the sale of 3 cars. He started advertising the second month and sold 51. Last month he sold 170. And his sales and advertising plans tell how he does it. Here are some of them:

When a car arrives from a dealer it is immediately washed and polished—inside and outside. "Many people buy by appearances," says Cuson, "and a cleaning sometimes adds \$50 to the value of a car."

Next, he adds \$65 to the price demanded by the dealer, which gives him a gross profit of that amount. The salesmen receive 20 per cent commission for their services.

Every window on the store front bears a list of cars. When the business started the lists told of cars on hand. As the numbers of cars grew and sales took



LEE CUSON

Who bristles with originality and keeps his business in the public eye

place every few hours, it was found a waste of time to change the lists several times daily—and since it was a successful pulling plan Cuson listed every make of car permanently. When a customer asks for a make not on hand he is asked for his name and address and called upon as quickly as the car he desires is located. This is an unusually good plan. Prospects may be seen all through each day to stop and look at the lists and enter.

Business has been increased by a considerable amount of advertising, a large measure of hustle and a goodly quantity of thought.

Motor Mart held the first state fair exhibit of used cars when it displayed its cars at the Michigan state fair in 1916.

It inaugurated a new idea when it co-operated with the "Forgotten Club" and opened its doors for contributions to buy presents for forgotten little ones at Christmas.

The store has for its motto "Ask the man in the white hat." Every salesman wears a white hat, so the customers can find "the man" without trouble.

When the "Forgotten Club" campaign occurred Cuson advertised "Ask the man in the white hat about the Forgotten Club." In every advertisement he uses and on his windows he displays this motto and every Detroiters knows of the white hat store.

Motor Mart has a library filled with books on salesmanship. The salesmen hold weekly meetings, at which they discuss salesmanship and sometimes invite sales managers of other concerns to give addresses.

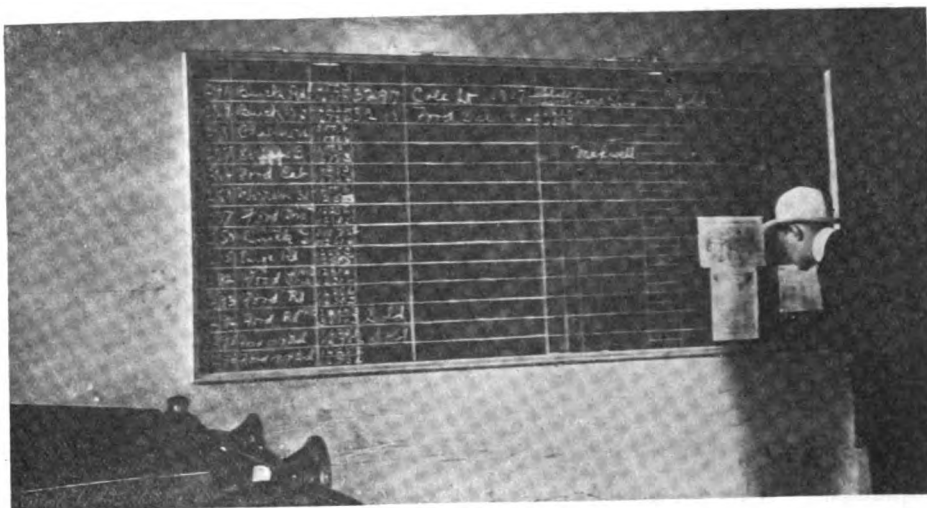
Sales contests are held frequently. The last was a race across the continent taken from a Motor World suggestion.

A map was hung with pins denoting the various salesmen. The race started at New York and finished at San Francisco with the winners receiving prizes of books and cash. Miles were given for every sale, every dollar saved the company and for every sort of plan that added to the efficiency of the store. Every employee participated.

A list of counts was arranged on the merit and demerit plan. For example, a late employee was deducted a number of



ON A BUSY DAY a crowd fills the big open space back of the Motor Mart and looks over the cars with critical eyes. The large number of cars offered is one of the advertising assets



SPECIAL BARGAINS are put on a bulletin board. Cars are listed sometimes when there are none in stock, but if inquiry is made an effort is put forth to get the type of car for which the customer asked

miles, while an employee who found a way to save postage stamps or clean cars more speedily was advanced a certain number of miles across the map. The plan acted as a stimulant to every

worker and proved to be very successful.

The Motor Mart is open 24 hours a day from May 1 to Oct. 1.

As the spring season opens, Cuson motors through the nearby country aiding dealers who subscribe to his appraisal service to sell used cars and gives them valuable advice about market conditions.

When Billy Sunday used the tabernacle behind the Motor Mart, Cuson advertised: "We are in front of all good things."

One day each month is Ford day. This day is set aside for the sale of Fords only, and they are not sold at any other time during the month. The day is widely advertised and dealers and motorists come from many miles. On Cuson's last Ford day he sold 205 Ford cars.

He handles only the used cars made in 1915 and 1916, and never carries more than 15 cars on hand at a time. He found that when he had 75 or 80 cars on hand his place became congested and the customers grew confused.

He continually issues instructive bulletins to the salesmen and employees of his store.

Signs reading "Courtesy First" are hung prominently—and that virtue is practised by every one.

"ASK THE MAN WITH THE WHITE HAT" is a Motor Mart slogan. As to the "man," there are 13 of him; count 'em. Read all the signs



SALES SHOTS FROM THE BOSS

SHOT No. 1

PSYCHOLOGY IN SALESMANSHIP

How to get the name on the dotted line is the weak point in many an otherwise good salesman. If you fail to bring about a definite and favorable decision in the mind of your prospect, it is probably due to one main reason. You have failed to do effective work in your demonstration and consequently have not awakened the imagination and inclination of your prospect. You have not made all points clear to him, or you have not overcome all his objections.

If the foundation of a house is poorly built, the structure is weak. If any one link in a chain is frail, the entire chain is weak. It is exactly so in a selling talk.

One of the most glaring weaknesses displayed by younger salesmen is attempting to close too early in the game. Your arguments, clinchers, prices are literally hurled at the prospect before the essential preliminaries are put over.

In talking to a prospect be affable, courteous and, above all, convincing. Use well modulated, even tones, for your tone of voice has a psychological effect upon the prospect.

Throw lots of "pep" into your selling talk. "PEP" is the very essence of Billy Sunday's sermons. It is this "PEP" that draws the big crowds and makes him the master salesman in the world.

THE MOTOR MART,
LEE CUSON, Prop.

Recently a number of testimonial letters were pasted on the windows to spell **PROOF**.

Last fall Cuson turned a motor car upside down and attached signs reading: "We turn over more cars than any other dealer." "We turn them over for your inspection." "Don't buy a cat in a bag."

At another time he loaded 25 children into a trailer and drove them through Detroit streets with a large banner flying and reading: "Ask your Dad to be a real Dad by buying a used car at the Motor Mart."

The general public holds the store in esteem. Recently a stranger entered the store, laid down \$350 in cash and said:

SHOT No. 2

THE CLOSING OF A SALE

Many sales are weak as closers. Study your demonstration thoroughly; elaborate upon it and arrange it in the most effective manner, gradually working up a climax. You will find that it paves the way to a comparatively easy closing. A clever and effective demonstration oftentimes closes the sale for you.

We will assume that you have done effective work in the earlier stages. In order to successfully close a sale, you must know just when to bring the demonstration to an end and to bring out your closing arguments. Many a sale has been killed by a salesman talking too much; losing the concentrated attention and interest of the customer and stifling his interest and desire.

There is absolutely a psychological moment for closing every sale. A little exercise of your intuitive faculties will enable you to feel that moment.

To cause decision in the minds of many prospects it often takes a push or a "kick." You may have him cornered in your arguments. You may have appeared to overcome all his objections, yet been unable to make him come to a decision. The reason usually is caused by some little objection still lingering in his mind—or he is not fully convinced. When this occurs, is just where your **REAL SALESMANSHIP** comes in.

During your demonstration you may have noticed that some one or two points you brought out appeared to impress the customer. If so, dwell on them and hammer away to overcome any objections that may exist in his mind.

THE MOTOR MART,
LEE CUSON, Prop.

"Mr. Smith told me to buy my car from you. Here is \$350. I don't know what kind of car to buy. Pick out a good one for me and have it ready by to-morrow morning."

All mail inquiries are answered promptly. All city prospects are called on personally and followed up. Newspapers, mail and circulars are employed to call attention to the store and its business.

When customers desire they can buy used cars on time. About 5 per cent of

SHOT No. 3

AUTO SUGGESTION

"The motor car," said the philosophical salesman, "sells itself." This is only partially true. While it is recognized as a universal necessity—selling and talking points that have the force of logic are what land the sales. The open air was meant to breathe. The length of a man's life depends largely upon how much pure air is forced to the bottom of the lungs daily. Only outdoor air is pure. Tell a prospect that there's a way to beat modern conditions in this respect. Buy a good used car and get out into God's pure air. Combine recreation with transportation. Trade the D. U. R. tickets for a used car. Think of the increased earning power an hour spent in the open in a car gives one—spraying the brain and lungs with pure "Ozone." Every motor car pays for itself automatically.

THE MOTOR MART,
LEE CUSON, Prop.

SHOT No. 4

HOW IS BUSINESS?

The above question is one of the commonest asked. "How is business?" with each and everyone of you? If your business is not good the fault lies entirely with yourself. Make a general mental inventory of yourself and see how you stand. **ARE YOU STRICTLY ON THE JOB?** Being on the job means having a clear understanding of your day's work. Things may start off badly in the morning. That is no excuse for a bad day. Make a bad start a good ending. How many of you boys lay out the next day's campaign during the night previous? It only takes a few moments. Mentally review what you intend doing each and every day and you will be surprised how nicely sales conditions will work your way.

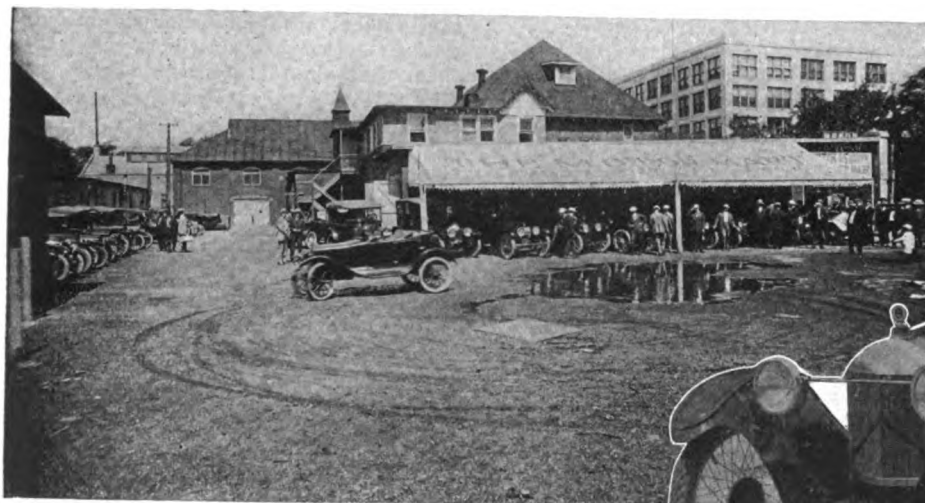
TRY THIS PLAN TODAY AND
EVERY DAY.

THE MOTOR MART,
LEE CUSON, Prop.

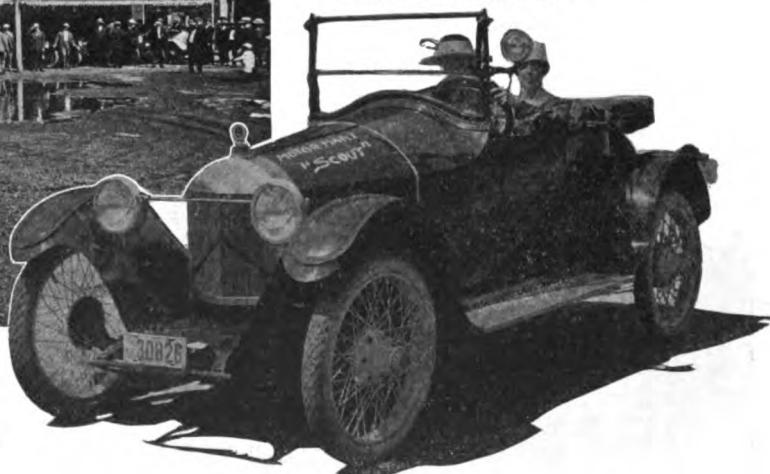
the sales are so made. An extra charge of \$50 is added to the price and a lien contract and insurance policy, paid by the purchaser, are taken out.

In short, Cuson believes in a number of important principles. He believes in:

- 1—Advertising.
 - 2—Courtesy.
 - 3—Giving the customer what he wants.
 - 4—The psychology of salesmanship.
 - 5—Honest dealing.
 - 6—Persistence.
 - 7—Hustle.
 - 8—Thought.
- They are all valuable.



The upper picture shows the full space back of the Motor Mart, with a car, minus a driver, taking its morning exercise. The picture at the right shows Mrs. Cuson driving a car that had been fixed over by the Motor Mart. Inasmuch as it bore signs it was quite an advertisement for her husband's business when she drove it about town—and she drove it considerably





MILWAUKEE'S USED CAR SHOW was held in the arena of the Auditorium. Signs marked the exhibit spaces as in a new car show, the signs telling what NEW car the dealer handled

Milwaukee Holds Used Car Show

Dealers Find a Big, Public Exhibition Very Successful and They Plan to Hold These Affairs Four Times a Year

By Leonard E. Meyer

MILWAUKEE, April 27—The Milwaukee Automobile Dealers, noted for its originality in business-building methods, has just brought to a highly successful conclusion the first used car exposition ever held in the United States, or anywhere in the world, for that matter.

The exposition was conducted for seven full days—April 20 to 26 inclusive—along the lines of the annual new car shows. It was held in the Auditorium, under one roof, in one of the most up-to-date exposition halls in the country. No admission fee was charged. About 10,000 people inspected the exhibits, and about 12 per cent made purchases.

The M. A. D. expended in the neighborhood of \$3,500 in the conduct of the show, and of this amount approximately \$2,500

was a return in the shape of fees for exhibit space. Eighteen Milwaukee dealers occupied twenty-five spaces at a cost of \$100 each and between 85 and 100 used cars were on exhibition at all times.

It cost the association approximately \$1,000 to put on the show, and this expense is covered by a draft on the treasury, the exposition being for the direct or indirect benefit of the forty-eight members of the organization.

Some Ran Out of Cars

Each member was privileged to participate, and the reason that only eighteen made displays was that the thirty others either had no used cars to offer, or their business is of such a nature that they have no used car problem.

Before the opening of the show, N. E.

Osmond, of the Chalmers-Wisconsin Co., chairman of the show committee, said:

"The first annual Used Car Congress of the Milwaukee Automobile Dealers is expected to establish the used car where it belongs in the public mind—something always to be considered by a prudent purchaser."

After the show, Bart J. Ruddle, assistant secretary and manager of the M. A. D., in direct charge of the used car show, said:

"There can be no doubt as to the practicability of a used car exposition. Ours has justified itself in experience. Milwaukee dealers are so satisfied with the results that they plan to hold one every three months—at each season. They have proven to their own perfect satisfaction that people will and actually desire to buy

No.
DEALER'S RECORD TAG
(Described at the Right)

Date..... Time.....

Dealer's Name.....
 Name of Car..... Roadster
 Pass..... Touring
 Capacity..... Motor No..... Received by.....

Sold to..... By.....

Date..... Price.....

Keep this Tag for Checking with Committee.

REMOVAL OR SALE MEMO.

Sold to..... No.

Removed by.....

Dealer's Name.....

Time..... Date.....

To Be Surrendered to Inventory Clerk
on removal.

ENTRANCE MEMO.

Date..... Time..... No.

Dealer's Name.....

Name of Car..... Touring
Roadster

Pass.....

Capacity..... Motor No.....

Received by..... Price \$.....

Clerk..... Record.....

To Be Taken Up on Admitting Car
to Sale.

ADVANCE INSPECTION

Admit

Name of Car.....

Year..... Model.....

Inspected April..... 1917

INSPECTION COMMITTEE

Per.....

used cars in a centralized mart, where they have the heretofore absent opportunity of wide choice.

"Our members have solved their used car problem, at least for the time being. There are to-day only a comparatively few used cars in the hands of local dealers. The large number in their hands a week ago has vanished. The used car exposition was the thing that turned the trick."

The M. A. D. expended about \$2,500 in the purchase of advertising space before and during the show. All of the publicity was confined to the daily newspapers of the city of Milwaukee, which, as customary, devoted from one-half to one column of reading matter in each issue to "covering" the event. The advertisements were prepared by advertising experts, the association having engaged one of the largest agencies in Milwaukee to prepare the "copy," which was subjected to a strict censorship.

In no advertisement was there any mention of any specific car or "bargain," nor were any prices quoted. The extreme of advertising claims was, "Save \$100 to \$200." No inducement was held out that could not actually be granted.

It is conservatively estimated by Manager Ruddle that 120 cars actually were disposed of at the show. The average resale price was \$500, although a goodly number of cars were shown at a price as low as \$225 or \$250. The purchaser was required to wait only a few hours

at the most to get delivery. A rule was enforced that no cars would be moved in or out of the Auditorium excepting just prior to the daily opening of the show at 1 o'clock p. m., or at 6 o'clock p. m. Cars sold in the evening were placed in the hands of purchasers the following morning.

Dealers' Record Tag

Every car was tagged with a placard showing the dealer's name, name of car, passenger capacity, motor number, price and other details. The tag was in three parts, the lower end being the "Entrance Memo," which was torn off upon the admission of the car to the show floor. The second part was a "Removal or Sale Memo," which was surrendered to the inventory clerk upon removal of the car, and the third was the dealer's record.

Before any car was admitted to the Auditorium, it was required to bear a red tag designated, "Advance Inspection." This admission ticket gave the name of the car, year and model, date and time of inspection, and the O. K. of the inspection committee, which consisted of Frank J. Edwards, chairman; A. J. March, George W. Browne, Jesse A. Smith, and Herbert W. Bonnell. As a rule, the superintendents of the mechanical department of each dealer made the mechanical inspection.

The M. A. D. used the entire main floor of the Auditorium, which was laid out in spaces, 20 x 20, for which the dealer paid \$100 each. The spaces were divided as at a new car show, each being surmounted by a large sign, showing the dealer's name and the cars in which he regularly deals. The cars were arranged side by side, with sufficient space to permit of thorough inspection by prospective buyers. No special decorative features were permitted, for the sake of preserving uniformity.

A uniform sales agreement, prepared by the M. A. D., was used for every sale. The agreement was at once a conditional sales contract or agreement, and a guarantee.

This agreement granted every purchaser a 7-day trial before possession. Whenever desired, sales were made on time payments, the dealer being the judge of the initial amount and payments.

To prevent misunderstandings or disagreements, the M. A. D. appointed an "adjustment committee" consisting of John G. Wolleager, chairman; Walter H. Diener, W. H. Krueger, F. W. B. Achen, and R. C. Chidester, which not only was active during the show, but will take care of all disputes thereafter.

On the first day, 20 cars were sold and not one brought under \$500. About 2000 people attended, in spite of a rainstorm which broke just at the time set for the opening.

At first it had been intended to run only four days—from Friday at 1 p. m. until Monday at 10:30 p. m.—but the show proved to be so much of a success that it was extended to cover 7 days—until Thursday night, April 26.

The full list of exhibitors was: Mitchell Automobile Co.; John G. Wolleager Co.,

Studebaker and Peerless; Motor Car Sales Co., Marmon, Jordan and Liberty; Diener-Nelson Co., Haynes and Grant; George W. Browne, Overland and Willys-Knight; Hoppe-Hatter Motor Co., Paige; The Winton Co., Winton; Rademacher & Jaeger, Paterson; Emil Estberg, Olds and Maxwell; Curtis Auto Co., Reo; Jesse A. Smith, Hudson; Chalmers-Wisconsin Co., Chalmers; Frint Motor Car Co., Monroe and Oakland; Cole Motor Co., Cole; Edgar F. Sanger Co., Stearns-Knight and Hupmobile; R. D. Rockstead, Lexington; Jonas Auto Co., Cadillac; Kissel Kar Co., Kissel; Edwards Motor Car Co., Dodge; East Side Buick Co., Buick; Achen Motor Co., Chandler.

Six or seven other dealers had engaged space, but the preliminary advertising of the show stimulated so much interest in used cars and resulted in so many sales that some of the entrants discovered at show time that they were without any used cars to show, and consequently relinquished their spaces.

Sales Contract

Milwaukee, Wis., April, 1917.

Dealer's Name.....

Address.....

Please enter my order for a used.....

Year..... Model.....

Delivery to be made.....
or as soon thereafter as possible.

If within 15 days after notification that car is ready for delivery, payment is not made according to this agreement it is understood deposit is forfeited.

Title to car to remain with.....
Dealer's Name.

until paid for in full.
This being an order for a used car, it is understood that purchaser has examined motor car and accepts it in its present condition with noted exceptions.

The car herein ordered is sold in its present condition with the understanding that the purchaser may return said car seven days from date if not as represented by notifying the adjustment committee, 316 Germania Building.

It is also agreed that in the event of purchaser returning car, purchase price shall be applied on another used car of equal value in stock of the dealer making sale, or the amount paid for the used car may be applied upon the purchase price of a new car from said dealer.

There are no understandings, agreements or representations, express or implied, not specified herein respecting the goods hereby ordered.

Price of car.....\$.....

Freight and preparing for delivery..\$.....

Extra equipment\$.....

.....\$.....

.....\$.....

Total\$.....

Deposit\$.....

Balance due\$.....

.....\$.....

.....\$.....

.....\$.....

.....\$.....

Signed

Address

Salesman.....

Accepted:.....

.....

By.....Manager.

Prices Brought at Milwaukee Used Car Show

Car	Year	Capacity	Price
Buick	1916	5	\$790
Cadillac	1911		325
Chalmers	1913	5	200
Chandler	1915	5	700
Chevrolet	1917	5	475
Cole	1916	7	1,375
Dodge	1915	5	550
Dodge Sedan	1915	5	625
Dodge	1915	5	600
Dodge	1915	5	550
Dodge	1915	5	500
Dodge	1915	5	525
Dodge	1915	5	570
Dodge	1915	5	550
Dodge	1915	5	625
Dodge	1915	5	525
Dodge	1915	5	550
Dodge	1916	5	650
Dodge	1916	5	575
Dodge	1916	5	600
Dodge	1916	2	600
Dodge	1916	5	550
Ford	1912	5	175
Ford	1914	5	185
Ford	1915	5	255
Ford	1916	5	350
Grant	1916	2	450
Grant	1917	3	700
Halladay	1912	5	250
Hudson	1915	2	650
Hupmobile	1915	5	695
Hupmobile	1916	5	750
Imperial 19	1915	5	400
Jeffery	1916	2	750
Kissel	1914	5	450
Kissel	1915	5	600
Krit	1914	5	385
Little	1914	2	175
Lozier	1915	2	500
Marmion	1915	7	1,300
Maxwell	1914	5	350
Mitchell	1913	5	225
Mitchell	1914	5	300
Mitchell	1915	7	700
Mitchell	1915	7	1,150
Monroe	1915	7	675
Monroe	1916	2	460
Monroe	1916	2	275
Oakland	1916	5	850
Oldsmobile	1916	5	950
Oldsmobile	1916	5	925
Oldsmobile	1916	5	925
Overland	1912	5	175
Overland	1914	5	400
Overland	1914	5	350
Overland	1914	5	390
Overland	1915	5	425
Overland	1915	5	400
Overland	1915	5	425
Overland	1916	2	525
Overland	1916	2	450
Overland	1916	5	475
Overland	1916	5	475
Overland	1916	2	450
Overland	1916	5	525
Overland	1917	5	600
Packard	1910	5	375
Paige	1913	5	750
Paige	1915	7	700
Pullman	1915	5	500
Regal	1914	2	325
Reo	1913	5	375
Reo	1914	5	300
Reo	1915	5	600
Reo	1916	5	750
Saxon	1916	2	500
Stearns-Knight	1916	5	900
Studebaker	1914	5	425
Studebaker	1914	5	350
Studebaker	1914	7	475
Studebaker	1915	5	425
Studebaker	1915	7	500
Studebaker	1916	7	625
Studebaker	1916	7	400
Sun	1917	5	700

used car show is to be given freely and without the hope of fee or reward to dealers in all other cities, in the hope that it will bring nearer to solution one of the gravest problems with which the industry is to-day obliged to contend.

As in all cases where lessees of the Auditorium stage free-admission events, the board of managers made the special rate of \$100 a day for the use of the building. This big fireproof exposition structure, covering a city block, is a quasi-municipal proposition, one-half of its cost, or \$250,000, having been appropriated by the common council, and the other half contributed by citizens by voluntary subscription.

It is the plan of the M. A. D. to hold further such shows in April, July, October and January. The big new car show is held in the Auditorium in January, and the annual fall show at State Fair Park, West Allis, a suburb of Milwaukee, the middle of September. These events are new car shows exclusively.

Herewith is a list of some of the used cars disposed of at the show, as reported by Manager Ruddle of the M. A. D. for the purposes of Motor World's Used Car Record. The list numbers 87, or about 75 per cent of the total sales made directly at the show. It is estimated that between 40 and 50 cars were sold privately at the

garages of Milwaukee dealers during the period of the show.

Racine Has Used Car Show

RACINE, WIS., April 27—The first used car show to be held in Racine, Wis., opened Friday evening in the Lakeside Auditorium, where the annual new car show is held in March of each year. The display is managed by Charles Tiede, who has staged all Racine shows in the past. A feature of the show is that at its conclusion, a real used car will be given away. It is a Mitchell roadster, with a 1912 engine and a 1915 chassis and 1917 appearance, constructed from a number of Mitchell cars by a Racine garageman. While the show was staged primarily for the benefit of Racine dealers, the scheme provided that any owner of a car might buy exhibit space and use the show as a market place, so long as there was any exhibit space left.

Against Sunday Demonstrations

ALBANY, April 27—The Maxwell Motor Sales Corp. does not believe in Sunday demonstrating and in the future it will not give such demonstrations unless the necessity for it can be shown to the management.

This is the type of advertisement used in the daily newspapers to boost the used car show. "Save \$100 to \$200" was the big idea. To impress upon the public that the show was not a "gyp-fly-by-night" affair where a man might "get skinned," the pictures of prominent participating dealers were run around the bottom of the ad. This lent tone and gave the public confidence in the venture

The Startling Facts Regarding This Unusual Event—

4 Day Used Car Sale
held at the
Auditorium April 20-21-22-23

Buy Your Car Now
Save \$100 to \$200

Sale Starts Today—Hundreds of Fine Cars Now on Sale at Prices That Save You From \$100.00 to \$200.00
Doors Open at 1 P.M.—Be Wise—Come Early. Admission Free

EVERYTHING is ready for Milwaukee's money-making 4 Day Used Car Sale starting today. From now on and the Auditorium is the place to go to see the latest and greatest in the used car business. The show is a real money-maker for the city and the dealers who are participating in it. The show is a real money-maker for the city and the dealers who are participating in it.

Most of the cars have been run only a few months—just enough to get them broken in and put them in the class of "used" cars. All of the automobiles are guaranteed—Guaranteed, Frisco Cars, Sebring, Chevrolet, Ford, Buick, and many others. Every car is guaranteed to be in perfect condition and to be in perfect condition and to be in perfect condition.

Don't miss this sale—doors open at 1 P.M.—because without a doubt, before this sale is a day old, a hundred cars will be sold, and many more than probably the very model.

About Every Make of Well Known Cars Going at Bargain Prices—Each Entirely Overhauled, Rebuilt and Guaranteed

They are in the class of "used" cars. They are in the class of "used" cars. They are in the class of "used" cars.

To make doubly sure every car has been inspected and is in perfect condition, the Milwaukee Automobile Dealers' Association has arranged for a special inspection of every car on the lot.

Easy Terms—Monthly Payments—Test Your Car One Week Free

There are no other car shows in the city. There are no other car shows in the city. There are no other car shows in the city.

TO OUT-OF-TOWN BUYERS—SPECIAL FACILITIES FOR HELPING YOU SAVE TIME IN MAKING YOUR SELECTION

It is the policy of the Milwaukee Automobile Dealers' Association to make it as easy as possible for out-of-town buyers to make their selection. The show is a real money-maker for the city and the dealers who are participating in it.

AUDITORIUM APRIL 20-21-22-23 MILWAUKEE AUTOMOBILE DEALERS' ASSOCIATION APRIL 20-21-22-23

Admission Free—Doors Open Daily From 1 P.M. to 10 P.M. Arranging Free.

The Milwaukee show attracted representatives of dealers' associations from a number of other cities, all of which are intimately interested in the Milwaukee Idea. Chicago, Toledo, Denver, and other cities sent delegates to inspect the exhibit. The M. A. D. gave these men every opportunity to study the system and its results, for the good of the industry everywhere. In addition, Manager Ruddle answered hundreds of letters of inquiry from all parts of the country, and probably will be kept busy answering such letters for weeks to come.

Milwaukee's experience with its first

“Daddy— Were You in the Big War?”

DO you, to-day, realize what we are fighting for?

Do you realize that we are fighting, NOT for any material gain, but for the safety of future generations in the whole world? That the world “may be safe for democracy.”

It's hard for some of us to realize the big ideal to whose cause we are committed, but that ideal is the big thing we are fighting for, and we're in it, and we've got to fight to a finish, and—

Your country needs YOUR help.



FIVE—ten—fifteen—twenty years from now children are going to ask: “Daddy, were you in the big war?”

And the answers they get will be something like this:

“Yes, kiddie, I was.”

“Didn't you get shot?”

And then millions of men will tell this story of the Big War:

“No, you see, it was like this: There were lots of things to do besides shoot guns and be soldiers. Our country at that time had to feed nearly the whole world and supply it with everything, and that meant that millions of men had to serve in the factories, mills and mines instead of in the armies.

“We would all have been willing to carry guns and be soldiers if we had been wanted, but each man took the job that was given to him, and with us all working that way it kept the armies supplied so they could fight.

“I remember well what a surprise it was when the war began. No one believed there ever would be another big war, and then the first thing we knew the German army was half way across Belgium.

“Then, the whole country was in great excitement. There were hot arguments on the street corners between our citizens of different nationalities. But our President told us to keep neutral and we did. We kept neutral even when our own people were insulted and killed, and even when the Germans set off bombs and killed people right here in our own country.

“We have always maintained that Americans—and all other people—have the right to go anywhere in the world and be safe, but one day a German submarine sank the Lusitania, a big passenger boat, and drowned lots of women and little babies, lots of them little ones just like you, who never had harmed anyone.

“We almost went into the war over this submarine

matter, but finally Germany sort of promised not to kill any more women and little children. But, one day, Germany changed her mind and said she was going to kill anybody she wanted to anywhere she wanted to—and then came the war.

“You see, it was almost three years from the time the war began until we got into it, and we had a hard time getting the people to wake up and take an interest in it. I was a little slow myself. The Lusitania was sunk almost at the beginning of the war, and so many other terrible things happened, all strung out over a long period, that when we did enter the war we went into it without any bang or hurrah, and people didn't seem to realize we were at war.

“They would have realized it at once if an army had landed on our shores and acted like the army that tore Belgium all to pieces, but nothing like that happened, and people didn't seem to know just what the war was all about or what our people should do to help.

“Our President, when war was declared, gave us a wonderful message. He said we were fighting for more than ourselves, that we were in the war to make the world a safe place to live in. He said the German people were all right—just like any other people, just like you and me—but that the big men who controlled Germany were just crazy to become more powerful and to trample over all the rest of the world.

“We believed that a little man or little nation has just as much right to live as a big one. We wanted to drive out the big powerful giant that would kill innocent people. We wanted to make all countries—and our own country—safe forever for all the little children that ever would be born. We wanted to make things safe so you could go to school every day, so your daddy could come home every night to see you, so your mother wouldn't have to worry about armies and killing and heavy taxes. That's why we went to war.

"But, you see, all this was not well understood when we started into the war. Some people even said we shouldn't fight at all. Every one would have fought a big giant who was trying to kill everyone, but the people didn't seem to understand that a nation could fight for that same reason. But by a big effort the idea was spread that we were more than men defending our own homes; that we were defending the homes in other countries that needed help and were fighting for all the homes that ever would be built in America for years to come.

"The awakening of the people to this big idea seemed to be slow, and it looked at one time as though America would be made to look like a coward because the people didn't seem to care what became of their own beloved country.

"I remember well how sentiment grew when it finally got started. Some people were all excitement and ran around in circles without helping much, but cool heads calmed the situation, everybody became sane, the factories ran, the farms raised crops and the whole country got behind the war and pushed it through to a finish.

"My own awakening came with a jolt. It suddenly

came to me one day that America was at war, that I was an American and that this meant that I must do anything and everything I could to help America win the war.

"About that time a lot of other people waked up too. We all began to talk to our neighbors and other people about how we were fighting for the rights of the whole world and against cruel and selfish kings. And the first thing we knew all of America was just one, big, united nation that said: 'We're going to win this war or bust'—and we didn't bust."

"But what did *you* do, daddy?"

"Me? I did the greatest service any American could do. I did all I could to arouse the people to the great ideal for which we were fighting. I tried to play the part of a true American. I urged everyone I knew to keep cool, but to be patriotic—ready and willing to serve when the time came, and in any way.

"Those of us who were called to arms went gladly. Those who were called to less heroic work responded just as willingly. My country called upon me to help in keeping the automobile business going, and I took the job they gave me and did the very best I could."

Wanted—100,000 Skilled Mechanics

The Garages and Repairshops of the Country May Have to Supply Them

BUSINESS as usual" is the optimistic slogan that underlies all the efforts of merchants and manufacturers of the United States in their preparedness for the war. But despite this spirit the great work of preparedness—and of operation after the preparedness has been completed—is bound to cause some confusion, some interruption in the smooth channels of trade.

It is only by intelligent organization that such confusion can be minimized, that such interruption can be reduced to the point where it has the least effect.

To Keep War Wheels Turning

For example, it can be conservatively estimated that at least 100,000 skilled mechanics will be urgently needed by the government. Of these, probably 15,000 will be required to care for the 3000 aeroplanes which will go into service; 80,000 will be needed to keep 40,000 war trucks running; more will be needed to maintain thousands of pleasure cars which may be temporarily converted to war purposes.

It is logical to expect that a large proportion of these 100,000 skilled mechanics will have to come from the garages and repairshops of the country. They cannot come from the motor car and motor truck factories because *they are needed there to produce*.

In short, they cannot be spared from work which

is just as important as the work of manning guns and ships and forts.

A majority may come from the garages and repairshops because here they are not engaged in productive work that is essential to the carrying on of the war.

And it is here that there is need of intelligent organization.

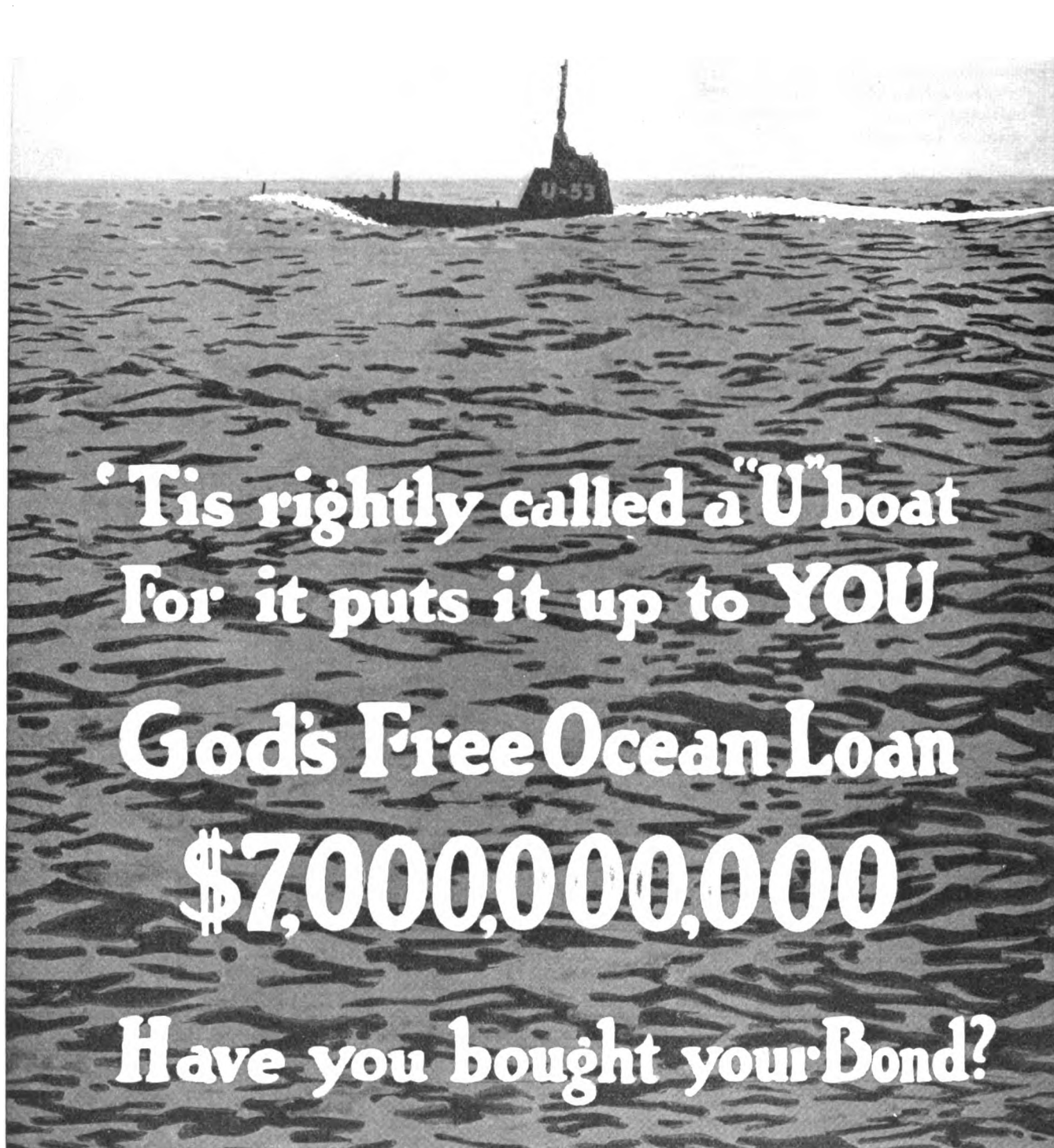
There are approximately 35,000 garages and repairshops in the country—some little and some big. This means that every one of them might have to supply an average of 3 skilled mechanics. Three men from a small shop might cripple the shop, so these little shops must not let all their men go.

Divide the Work Up Equally

Much of the work of supplying 100,000 skilled mechanics may have to be divided among the 35,000 garages and repairshops in such a way that none will be crippled. The big shops must make up the deficiency represented by the inability of the small shops to supply their 3 skilled mechanics each.

The government must have the men. The garages and repairshops can supply them and may have to. But it must be a case of give and take between the big fellows and the little ones. *Every garage and every shop must do its bit.*

Let's All Help



**'Tis rightly called a "U" boat
For it puts it up to YOU
God's Free Ocean Loan
\$7,000,000,000
Have you bought your Bond?**

HERE is the motor trade's first real chance to "do its bit." The seven billion dollars of bonds are offered as an investment to the American people at \$100 each. They pay 3½ per cent. They are safe. There are hundreds of dealers who have surplus money that can well be invested in these bonds, and numerous associations have funds that will be safe to the investors and a big help to the nation if put into this loan. Thousands of people cannot buy even one bond, and that means that some must take more. Here is YOUR opportunity to help start the war with a big push.

Spreading the Gospel of "How To Do It"

By Ray W. Sherman

"REILLY," announced Tommy Trumbull one afternoon, "what's the matter with getting a factory man down here once in a while to scatter around a little bit of what he thinks he knows about selling this car?"

"Fine! Hop to it!" Reilly, who left much of the work to Tommy these days, finished signing a half dozen letters before he looked up. Then he repeated: "Good idea! What's the dope?"

"Just this: These factory fellows ought to have all sorts of original ideas about how to sell cars. They have made a study of the thing from the ground up at the factory, and they are posted on all the points on which our prospects raise objections. They ought to have this sales story down so pat that they couldn't be tripped at any point."

"Yes, that's true. They generally give us some good stuff at show time, don't they?"


"Yes," agreed Tommy, "they do, but at show time there generally is a big bunch of us, the time is limited and the factory men have to work on a schedule. This makes it necessary for them to work pretty fast, and sometimes we lose the benefit that would come from a face-to-face talk."

"If we could get a man to come down to our place and if we could get all the dealers from this section in for a day or two we ought to be able to run a pretty lively session. With a meeting like this we could have this factory man talk on how to sell the car, and then we would have the opportunity I have often longed for at these show meetings, that of asking questions."

"I remember our factory lecturer last winter told how to take the pencil away from the man if he balked at signing the order, how to go after him again and how to give him the pencil again. What I have always wanted to ask is what to do if he balks a second or a third or a fourth time. What's a fellow going to do then?"

"Now, if we had a factory man here we could ask him all sorts of embarrassing questions. Maybe some of them he couldn't answer, but what of that? Maybe before we got through our session he would have gained ideas he never had before, and I'm darned sure we all would gather ideas that we never could get in any other way."

"I'm certain there are lots of sales points we never use. Maybe some of them wouldn't occur to the factory man unless he jotted them down before he began to talk, but he ought to be able to unload a raft of them on us. And we could take a stenographic report of the meeting and distribute copies to the dealers and salesmen. Just see what a wonderfully valuable sales manual it would be. The dealers and salesmen would go over these again and again and would get the sales work better in mind each



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MY DEAR ray-


BRANCHES:

NEW YORK
PHILADELPHIA
ATLANTA
PITTSBURGH
CINCINNATI
CHICAGO
ST. PAUL
KANSAS CITY
DALLAS
DENVER
SAN FRANCISCO
LOS ANGELES
SEATTLE

CANADIAN FACTORY
TORONTO

ALL AGREEMENTS ARE
CONTINGENT UPON STRIKES
ACCIDENTS AND OTHER
DELAYS UNFORSEENABLE OR
BEYOND OUR CONTROL
QUOTATIONS SUBJECT TO
CHANGE WITHOUT NOTICE

ADDRESS ALL
COMMUNICATIONS
TO THE COMPANY



YOU HAVE had the
GRIP OR gripper or
SOMETHING AND I am
SORRY FOR my wife
HAD IT and I
HAD TO cook the
FOOD AND I couldn't
VERY WELL and I
BURNED IT and she
SUFFERED AWFUL and I
ALMOST STARVED and the
MAN WHO runs the
DELICATESSEN OR whatever it
IS GOT to calling
ME FRANK but she
GOT WELL and I was
SORRY FOR you and
THOT YOU might want
AN OR a idea
TO SPRING on tommy
TRUMBULL SOME day when

HE HAS just flung
A SALESMAN out on
HIS HEAD that the
MANUFACTURERS ARE spending a
LOT OF MONEY to
EDUCATE the dealers
IN THE construction of
THEIR STUFF and that
THESE FACTORY man know
A LITTLE about how
THE DEALER can sell
IT AND then maybe
TOMMY WILL take the
HINT AND get some
NEW ANGLES the next
TIME AND make a
LOT OF money and
MY WIFE says stop that
AND COME with me
I WANT to go
TO A moving picture
I THANK you

LYNITE-PISTONS
ALUMINUM
LYNITE-PISTON RING EQUIPPED

Frank J. Stanley

Dear Frank—Thanks for the idea in your KCB letter. Tommy Trumbull is trying hard to make a lot of money. Next time you have an (or a) idea shoot it along—if it doesn't interfere with your work (office and house). We could write a letter like yours, but it's too hard work. We thank you

time they did it. It ought to be worth hundreds of dollars to us and to the factory, too.

"I'm sure Jim, the sales manager, would send some one—or maybe he would come himself."

"I'm sure he would!" enthused Reilly.

"Our dealers out through the country never have had a chance to go to a school of salesmanship, and most of the salesmen in this business never got much education of that sort outside of what they picked up," Tommy continued. "It is the uncommon thing to take a course in salesmanship; it isn't like going across the road to the schoolhouse. That's one good that would come from a series of meetings like this. It would make the search for sales knowledge a habit with all of us."

"Manufacturers are spending a lot of money these days on selling their product. The accessory manufacturers are

doing it just as much as the car makers. Some of them have worked out plans, but none of them is putting across a full measure of sales instruction. There are many plans for schooling salesmen in how things are made and why they are good, but there isn't enough done on how to sell the thing after it is made.

"It's all right to give a man a list of selling points and a dissertation on how a thing is made and why it is good, but unless the man has some knowledge of salesmanship he can't sell the thing."

"I know more cars, more tires, more accessories and more everything could be sold if there were a greater knowledge of salesmanship, and I'm sure there could be a greater knowledge of salesmanship if we could get some such plan as this started and pass on to our group all the dope we could get—from factory men, some of our own people and from any others we could lay our hands on."

Accounting *and* Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Sneed

Proprietor's Account

System Editor: Will you please tell me how to take care of the proprietor's personal account in your simplified system?—MISS GRACE SMITH, C. M. Phinney's Garage, Russell, Kan.

You would treat this in the same manner that you would a customer's charge or credit account but instead of carrying it in your Accounts Receivable ledger, you would carry it in the back of your binder among your Asset or Liability accounts, charging any advances made to the proprietor or crediting him with any payments to apply on his advances.

Service Labor at Cost

System Editor: The writer has been charging "Auto Sales Department-Service Account" with service, and "Auto Sales Department Purchase Account" with assembling of cars at the regular rate per hour charged on all repair jobs.

I have been informed that this is not correct; that the rate per hour should be charged at actual wages paid to mechanics and helpers.

Inasmuch as a mechanic's time is valued at 75 cents to \$1 per hour, would not the repairing end of the business suffer by charging actual rate of wages?

Our fiscal year is about to end, and I am anxious to have this straight before closing books and rendering a statement.—FISCHER'S GARAGE, Newark, N. J.

All inter-departmental charges in your business should be made at cost without any added profit whatsoever.

If your repair department does work for the sales department, the charge should be made at the actual labor cost plus materials and supplies. You say that the repairing end of your business would suffer by charging the actual rate of wages. You must look at this in the light of your repair department being really a service to the sales, and that, unless you have the sales business, you probably would not be able to carry a separate repair department.

Again, if you should charge your sales department with a profit on the work that you do for them, you would be making a double profit in your business which would be fictitious; at all times remember that you are accounting for your business as a whole, and not for one separate department.

If you should charge a profit to your sales department from the repair department and then charge your customer

a profit from the sales department, your figures at the end of the month would show a profit that you have never made. The idea of keeping the departments separated is for the purpose of determining the rise and fall in earnings and expenses and not to make profits on charges from one to the other.

How Much Cash?

System Editor: We are just starting your system and would like to ask if we are supposed to find the amount of cash on hand from the ledger. Is there some way to balance this with the cash on hand (in the store and in bank)? We keep the all cash received column to tally with the slips and cash received, but, as we leave different amounts in the drawer each night, keeping the amount on our register slip, we want to know just how to find the amount of cash from the ledger.—CLAREMONT GARAGE, 84 Pleasant Street, Claremont, N. H.

The proper way to find this is to take the Cash in Bank and in your cash drawer and add to these two amounts the amount of cash that you have received during the day or week.

From this subtract the amount as shown by the All Cash Paid column and the result will be the amount of cash that you should have on hand in your cash drawer and in your bank.

If this does not agree, you should first determine whether the amount that you started with is absolutely correct by proving up your bank book as of that date and referring to your cash register slip, also of that date. Then check each day's receipt as shown by your cash register with the All Cash Received column on Form 1 and with your bank deposit as shown by the entries in your cash book. Then check your All Cash Paid column with the cash paid out from your register and the check drawn from your check book.

After you have checked as above, you will no doubt find your error, and, if not, we can only suppose that the cash was either lost or taken from your cash drawer, for the amount is shown by the difference between your figures and the actual cash on hand and in bank.

It Would Not Fit

System Editor: We are in receipt of your booklet, "The Motor World's Simplified System of Accounting," and the three forms illustrating what you use in your binders to take care of garage business.

It is a question in my mind whether it would be feasible for our business, and therefore before making any decision I am writing you to see what you think of the matter.

To get at this, perhaps the best way would be to explain to you just what kind of business we have. Then, we would like you to write us in full what you think of the practicability of our putting your system into use.

We are a large corporation, incorporated for \$150,000. Though we have been in business but a year, we are now doing a monthly business of one hundred thousand dollars.

We have a large selling department handling pleasure cars; a truck department, and a used car department; a large shop; a stockroom carrying an enormous amount of accessories and parts, and the largest garage in the inter-mountain country.

What we desire is a system whereby we may know in detail every movement of each department, so that we can tell on the night of each day just what that department has made or lost for us.

In the shop and also in the service department the work is paid by the hour; our salesmen are paid a salary and commission; and the other help are paid on a monthly basis.

In addition to selling accessories and parts, we also sell gasoline and oils; have a battery charging station; and, also do tire repairing.

In addition to this we have eight different divisions covering Utah and Idaho, and each of these divisions has the same divisions in its work, such as shop, garage, storage, etc., as we have here.

About half of these are direct branches, and the others are separate and individual corporations, of which we own a controlling stock. Therefore, you can see that they are practically controlled by the Salt Lake Division.

In addition to this there are under each division a number of sub-dealers.

We are handling four different pleasure cars and three different trucks. All these pleasure cars and trucks are ordered and billed to the Salt Lake house, they are then rebilled to either a division or dealer, as the case may be. The cars and parts, of course, are billed to us at a little different discount than we bill them out to our divisions and dealers.

During December, one of our poorest months, we handled through the Salt Lake house twenty-six carloads of but one make of pleasure cars.

If you will kindly place in your mind our large firm, how we are organized,

and the large volume of business we do, and then, explain how your system can be adjusted to our business, we shall greatly appreciate it.—UTAH IDAHO MOTOR CO., South Main St., Salt Lake City, Utah.

We do not believe that the Motor World system would be a practical one for your establishment. It is entirely feasible and would without a doubt take care of your needs, but as we have already said, we do not believe that it would do what you want.

The volume of business that you do does not influence us in advising you, nor does the amount for which you are incorporated; but the fact that there are so many ramifications, so many departments and divisions and your business is divided into wholesale and retail sales, and, in addition, your service departments and others, all tend to make it inadequate for your needs.

If you have been following our articles on accounting and the questions and answers appearing, you will find that we have advised our readers to have the "system fit the business" rather than make the "business fit the system," and while there are at the present time over 2500 of these systems in use, we will not hesitate to advise our readers not to install the system if we believe it inadequate.

We shall, if you desire, put you in touch with someone who, we believe, will be able to give you a quick and accurate system that will enable you to know in detail every move of each of your departments as soon as is consistent with good accounting methods.

In this connection, we know of a very large dealer business in New York City that is at the present time using five of the Motor World systems of accounting. Their proposition is somewhat similar to your own in that they have branches of their business scattered in and around

greater New York and they use a system in each one of their branches. The statements from each one of these systems they consolidate at the end of each month into one statement of their business.

We could no doubt give you some plans whereby to use this plan if we were in closer touch with your affairs, but in view of the fact that you have so many different angles to account for, we do not hesitate to advise you to engage some competent accountant to handle this work for you.

Make Monthly Tables

System Editor: We have installed your Simplified System of accounting and are very much pleased with it.

We do not intend to make out a monthly statement at the end of each month. We wish to use a table similar to table No. 1 or Nos. 4 and 5 at the end of each month instead, which will show the profit and loss of each department.

Can this be done with your system?

If so what table shall we use?

The following is an entry we do not clearly understand how to make:

Tire Adjustments

Our customer purchases a tire from us for \$11.50. We send his old casing to the factory and they credit our account with \$3 and we in turn credit our customer with \$3. The express on casing both ways was 60 cents, which we charge to our customer. We understand that we shall make the credit entry of \$3 to customer's account on Form 1, but we do not know whether to make the debit entry of this \$3 under All Other Accounts or All Cash Received.—MOON BROS., Grove City, Pa.

Tables Nos. 4 and 5 are a statement of the Income and Expense of your business by departments and you can, of

course, make this statement without making a statement similar to table No. 3.

But in order to arrive at the figures on 4 and 5, it will be necessary for you to compile the figures as shown by table No. 3. And while you are making a statement of income and expense, it would be very little more trouble for you to make a statement of your Asset and Liabilities, which statement is at all times not only a guide as to the proper conduct of your business but is handy for tax reports, etc. I would suggest that you make both statements which will take very little more of your time.

In answer to your second inquiry. When you returned the old casing to the factory for credit, you would make an entry on Form 1 as follows: You would charge the factory with the amount for which they were to give you credit, which we will assume is \$3 and this would be charged under the All Other Accounts column to your factory account. On the credit side of Form 1 you would credit your Customers' Account with the amount of the credit which the factory was to give you, which is \$3. When you learn the amount of the expressage both ways on this casing, you would make a charge of 60 cents under Customers' Account, Charge amount, to the customer and the 60 cents you would credit under the All Other Accounts column to your sale of parts and accessories department, Expense of Express.

This credit of expense will offset the charge of expense that you will make to the same department when you pay the bill.

When the customer comes in to settle his account, the credit of \$3 will reduce the amount that you will enter in the All Cash Received column by that amount, and he will, of course, pay you for the 60 cent charge that you show on Form 1 under Customers' Charges.

This Window Made Folks Want to Buy a Car

WHEN the downtown merchants of Los Angeles held their semi-annual fashion show recently and filled their windows with the newest things in spring styles, Paul Hoffman, manager of the Studebaker branch, decided that it would be fitting and proper for him to inject the spring fashion idea into motor cars.

An outdoor life demonstration was selected as quite the thing. He consulted with a company that specializes in making tents and awnings. The result was a novel exhibit. A canopy-top car was one innovation; but this car was not the only feature. Mountain laurel and bay trees were brought in from the foothills and real greasewood and sagebrush from the desert. Finely cracked rock was strewn over the floor. A Studebaker car was put in position and the customary motor car tent put up.

There was another type of tent, too, and all the usual camp equipment, even down to a real campfire, where coffee was kept boiling and served with light refreshments to all visitors. An imitation brook with real water threaded its way over boulders, and carefully concealed in the low hanging branches was a large electric light that furnished the sunlight glow. Live trout, borrowed from a hatchery, flashed and leaped about in the water.



SCIENTIFIC CONSTRUCTION

GARAGES □ □ □ SHOWROOMS □ □ □ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

Store and Service Station for Tire Co.

EDITOR Motor World: We agree with you that one entrance would be sufficient, and would ask that you forward us a plan of the building covering two stories, with just one entrance, according to the specifications contained in our previous letter.—A. F. Wolke Rubber Co., Inc., 624-626 South Third Avenue, Louisville, Ky.

Answer—Figs. 1 and 2 show a plan with only one entrance. You will note that the whole arrangement is more convenient than if two entrances were used. The offices are more accessible, and it takes fewer steps to remove a certain tire from a certain rack.

There is sufficient space in the garage to allow for the storage of two rows of cars on each side of the aisle.

Tire accessories are sold from showcases and shelves located at the side of the store and there is a substantial wooden counter along the rear, over which the tires are sold.

How to Repair Defective Concrete Floors

Editor Motor World: We have just about completed our new garage at Montevideo, but when the contractor laid the concrete floor he did a very poor job. It's very rough and cracked in several places.

It was allowed to dry out too fast and in some places will roll out under a person's shoes.

He also put on a leaky roof and this let the water run down over the plastered walls, making them black. What can be done in this case?

Is there any preparation that can be applied on this concrete floor that will make it entirely smooth and durable—not paint or any such thing but something that can be troweled right over the old floor?

Do you know of any preparation that can be applied to wood floor to help make it fireproof.—P. F. Bonde & Son, Montevideo, Minn.

Answer—The floor could be covered with some such material as Mastic Insu-

lite handled by the Thomas Moulding Brick Co., Chicago, or a somewhat similar preparation made by the H. W. Johns-Manville Co., New York.

There are several liquid preparations that are transparent or nearly so, which

could be applied to the floor surface and would probably solve the trouble at less expense. One of these coatings is a mixture of turpentine and boiled linseed oil in equal parts applied to the floor in several coats. It is only suitable for old floors or floors that have thoroughly hardened. It darkens the floor somewhat. Sometimes the boiled linseed oil is used alone and sometimes with gasoline.

Another remedy that has been found efficient is paraffine, either melted and applied hot or dissolved in naphtha and applied cold as a paint. Still another remedy is sodium silicate or waterglass of 40 deg. Baumé applied in a 25 per cent solution in several coats at intervals of 24 hours.

The plastered walls of the building have probably been badly stained by the leak in the roof and it seems to us that the only thing to be done is to have the contractor repair the roof and then cover the walls with a suitable paint.

As to a preparation that can be applied to a wood floor to make it more fire-resisting, Scofield-Evans & Co., 24 East Eighth St., Chicago, and the Minwax Co., New York, have preparations that can be used for this purpose.

We assume that the floor surface is not cracked very badly and it therefore would not be necessary to place a new top on the floor or to replace any individual slabs in the floor. It should be said, however, that if the floor surface is rough, it would be necessary to smooth it down by rotary polishing stones such as those used in surfacing terrazzo floors before the liquid coatings that we have mentioned are applied.

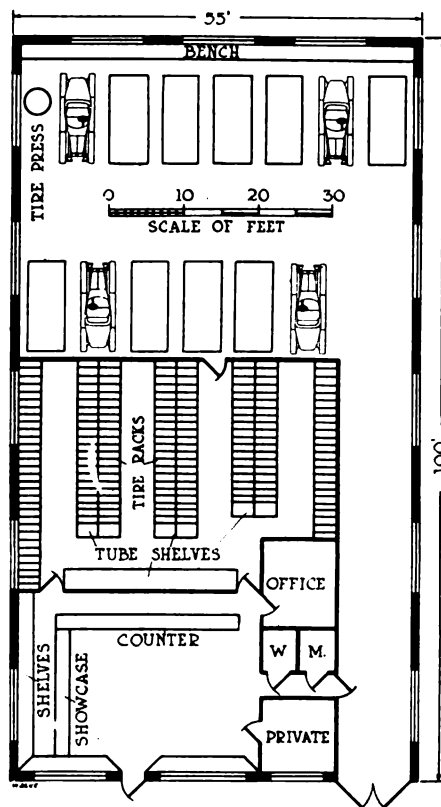


Fig. 1—Plan of exclusive tire store and service station

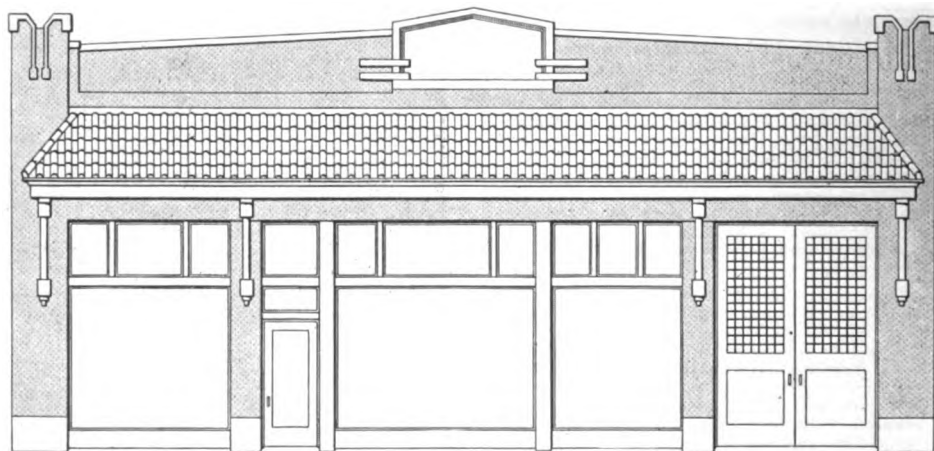


Fig. 2—Store front of Wolke Rubber Co., Louisville. The entrance to the garage is at the right

New Building Demands Up-to-date Fixtures

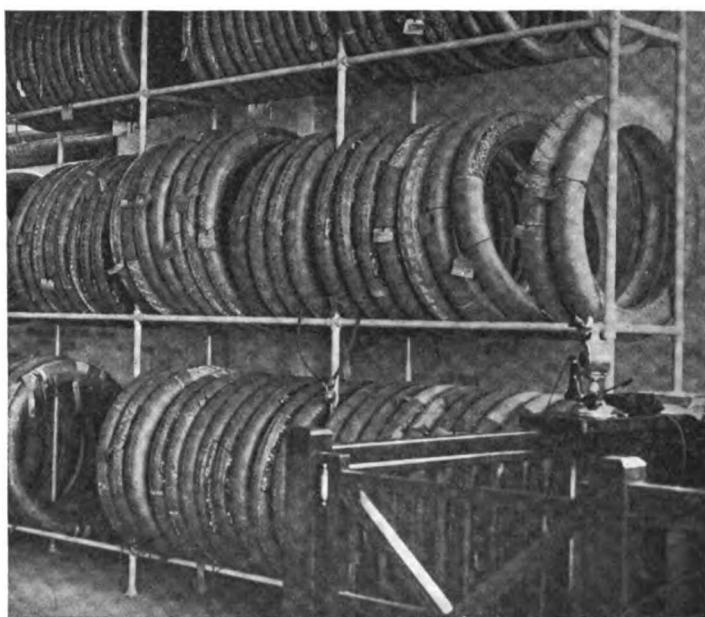


Modern methods of displaying accessories and supplies are particularly necessary in a new building. It is simply putting new wine in old bottles to spend thousands of dollars on a new building and then slight the accessory store. The arrangement of showcases, shelves, drawers and bins in this photograph is unusually attractive. The showcases house the articles which are being pushed; staple goods are in plain sight on the shelves

behind (the shelves being auxiliary to the showcases); the drawers house smaller articles which cannot be piled neatly on shelves, and below the drawers are bins for carrying larger articles. The whole effect not only appeals strongly to the eye of the customer but also has the advantage that it offers maximum convenience so that the clerk can serve the customers in minimum time. The drawers are all labeled



Caps and hats are effectively displayed in showcases with a narrow top shelf and a somewhat wider shelf below, this arrangement affording practically full view of the whole interior. The showcase not only acts as a display fixture but also is a protection against the goods becoming shop worn. The motorist can see the whole assortment at a glance, which is much better than asking him to wait while the contents of a dozen or more boxes are dumped out on the counter. The glass cabinets behind house larger articles, such as blankets, and since the articles are in plain sight many sales are made simply because the motorist sees something behind the glass which strikes his eye



A neat tire rack made out of pipe costs very little more than a makeshift one constructed of wood, yet the difference is immeasurable. This tire rack is just as essential as a showcase or display window, and where space permits it should be placed in the store itself, and not in the stockroom. But if this is done, the tires must make a neat appearance. Tires with the wrapping paper half falling off should not be permitted. Even if the rack is placed in the stockroom, its contents should be attractively displayed so that a customer may inspect the stock at any time. In fact the whole stockroom should be neat so that it may be used as an auxiliary display to the store

Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

Battery Repair Card for Service Station

Editor Motor World: The card shown on this page is a battery repair card used at our service station. The writer has seen various systems employed, and got this card up because the others did not seem to be as simple as they might be, and still cover all requirements. We admit that there are simpler systems in use, but many of them are too simplified in our estimation.

The first card is held in our stockroom where deliveries of batteries are made, and where the batteries are received for recharge or repair.

To distinguish batteries, we place a lead tag on every battery in our repair department. We take the name and address, the make, type and number of every battery that comes into our place. It is usual to have regular loan batteries numbered from one to one hundred, and in this case, of course, the number would simply be inserted and not the make and type.

We also take the name of the car and the license number. This protects us from unscrupulous owners who are taking a good battery from us on loan and leave a battery that they feel is not worthy of repair, and forget to come back again. You can readily realize that it is very easy for us to follow it up and get the return of the battery.

If a battery is left for charge, we check the item Charge, and quote the customer a price and make a note of when the battery is promised to him. If it is checked for repairs, we check the item repairs, and go through the same procedure. If the battery is left for charge, and we find that it will not take a charge, we notify the customer and get his O. K. to go ahead and repair the work.

In many cases, we loan batteries, and we make a note of the number, make and type that we loan, and get a receipt from the person borrowing the battery. The second card is given to our repairman for his record.

The claim check is given to the owner. When the battery is called for, we make up the charge on the first card, and when the delivery is made, we make a note of the date and get a receipt from the

owner. When the work is done, the three cards are attached, and sent to the office for entry.—R. Z. Lindsay, Wagner-Hoyt Electric Co., New York.

How to Become a Race Driver

Editor Motor World: Are there any automobile factories that give training in automobile race driving, or where can I get such training?—Subscriber.

Answer—There are no factories which give training in race driving.

There are two ways of obtaining experience—by purchasing a car and racing it around the roads until you be-

come experienced enough to compete in track events and connecting yourself with some racing team, getting a job as mechanic or mechanic's helper, or something of the sort. By doing this you may eventually become a race driver.

Remove Cylinders to Grind Franklin Valves

Editor Motor World: Will you please give me instructions as to how to proceed to grind the valves on a 1914 Franklin?—D. H., Holyoke, Mass.

Answer—In order to grind the valves on a 1914 Franklin, or any of the models since that time, it is necessary to remove the cylinders. The complete job will probably take you 2 days.

Oil Stops Rust in Cooling System

Editor Motor World: Will you please tell me whether it would hurt to put some lubricating oil in the radiator to prevent it from rusting and whether it would hinder it in cooling?—Subscriber, Pella, Ia.

Answer—A small amount of lubricating oil, say a tablespoonful, will have no ill effect on the cooling system, and on the other hand, it will prevent rust to a certain extent, just as you suggest.

We do not believe that this small amount of lubricating oil will have any ill effect on the rubber hose connections.

Wagner-Hoyt Electric Company NEW YORK BATTERY DEPARTMENT				Wagner-Hoyt Electric Company NEW YORK BATTERY DEPARTMENT			
Lead Tag No. _____		NO. B 3200		Lead Tag No. _____		NO. B 3200	
Date _____ 191				Make _____ Type _____ No. _____			
Name _____				Charge _____ Repair _____			
Address _____							
Car _____ License No. _____							
Make _____ Type _____ No. _____							
Charge _____ Repair _____							
Cost _____ Notified _____							
Promised _____ Estimate _____							
BATTERY LOAN							
No. _____ Make _____ Type _____							
Received _____							
CHARGE		Amt.					
Labor _____							
Material _____							
Loan _____							
TOTAL							
DELIVERY							
Date _____							
Received _____							
BATTERY CLAIM CHECK				BATTERY CLAIM CHECK			
NO. B 3200				NO. B 3200			
Make _____ Type _____ No. _____				Make _____ Type _____ No. _____			
Date _____				Date _____			
Name _____				Name _____			
Paid in full No Batteries Without Check				Paid in full No Batteries Without Check			
If Loan Battery should be returned for a longer period than the loan period, a charge of 10c per day will be made. A deposit charge will be made for re-charge if battery is left over 21 days. Not responsible for batteries left with us over 30 days.				If Loan Battery should be returned for a longer period than the loan period, a charge of 10c per day will be made. A deposit charge will be made for re-charge if battery is left over 21 days. Not responsible for batteries left with us over 30 days.			
Wagner-Hoyt Electric Company 1802 Broadway New York				Wagner-Hoyt Electric Company 1802 Broadway New York			
CALL FOR YOUR WORK				CALL FOR YOUR WORK			
191				191			

Battery card which is torn in three pieces, one going to the customer, one is held in the stockroom and the third sent with the battery

Accessory Sales Letters for Summer Business

Editor Motor World: We want to send out some sales letters to our customers and will be pleased to receive any suggestions or helps that you can give us.

We have a retail accessory store and handle exclusively Kelly-Springfield tires, Havoline and Mobiloils and a complete line of accessories. Our only repair work is storage batteries and we have the Willard service station contract.

Any suggestions for a letter or copies of letters that you can give us will be appreciated.—Don Gardner, Auto Accessory Co., Lawrence, Kan.

Answer—Herewith are three letters. We have answered many letters similar to yours and a number of dealers have secured good results from them. We have borne in mind the size of town you are in and have tried to picture the class of people you cater to.

GENERAL LETTER

What the gents' furnishings store is to your wardrobe our accessory store is to your car.

There are always things you want and want in a hurry when you are starting out for a drive—a wrench, a jack, some oil, a tube or a lot of other things—just as you sometimes find, when dressing, that your last clean collar is gone and the laundry hasn't come back.

To avoid annoying instances of this kind we suggest that you drop in some day and become better acquainted with us and our store. There are lots of things you won't buy, but there are several things you really will find necessary.

In addition to handling a complete line of accessories and supplies we are exclusive representatives of Kelly-Springfield tires, Mobiloil and Havoline oils, and are Willard battery experts.

Drop in and ask to see our new never-give-you-trouble jack.

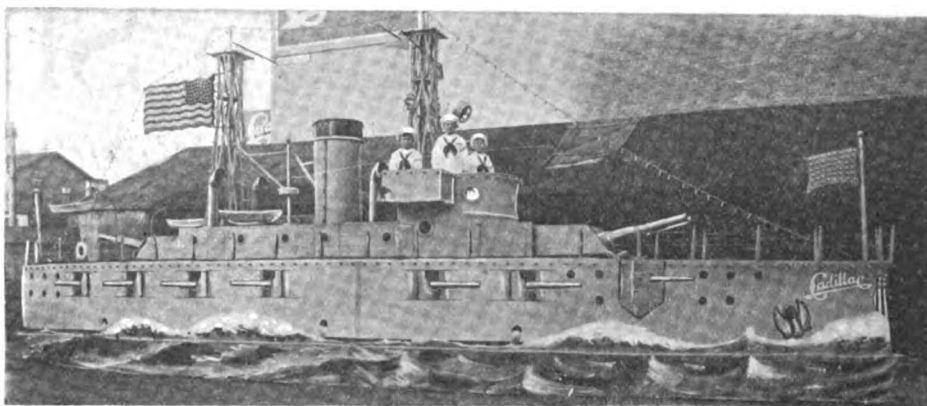
AN OIL SELLER

Well oiled machinery always lasts longest, doesn't it?

We all admit that fact, and on the other hand few of us think of our cars as anything but pieces of machinery. Yet that's all they are.

The proper oiling of a car depends on more than having lots of oil. It depends even more on the KIND of oil. There is a RIGHT oil for every motor during the coming hot months, and we want to talk with you about the oil you are using.

Battleship Built on Cadillac by Dealer



THERE have been battleships and battleships, built on automobile chassis for motor parades, but it remained for the Cadillac dealer at Dallas, Tex., to turn out a 40-ft. craft, with funnel belching smoke, guns actually firing, and the whole ablaze with 2000 electric lights.

Dallas recently had a Style Show, and the Munger Automobile Co. decided to do something out of the ordinary. Using a Cadillac eight chassis as a foundation, a replica of the battleship "Texas" was erected. It was a little more than 40 ft. long, weighed more than 9000 lb., and required twenty-nine storage batteries to furnish current for its 2000 incandescent bulbs.

As a matter of course, the judges of the illuminated parade awarded first prize to the "Cadillac," that being the name of the battleship.

A single chassis was used, and four men were required below decks to operate the various apparatus. Dashing waves

were very artistically painted on the sides of the ship, and when it "steamed" along the streets the effect was very realistic. The two guns in the forward turret were arranged so that they could be fired, and kept up their salutes throughout the parade. By using crude oil in a blow torch, smoke was caused to pour from the funnel.

The battleship was a replica of the great craft of the sea. At the forward end was a reproduction of the U. S. Union Jack, the background painted blue, with forty-eight blue electric bulbs. Just aft of the second mast was a large American flag with something like 700 electric lights. The ship carried small boats and two complete motor boats swung on davits.

To all appearance the ship was manned only by three figures on the bridge—little boys dressed as sailors; but below-decks were the four men previously referred to.

NO COMPRESSION KNOCK ON BUICK

Editor Motor World: Has the Buick a compression knock?

What is regarded as a safe limit of pressure in order to avoid the compression knock in these cars?—S. P. Wirkus, Minto, N. Dak.

Answer—Safe compression pressure depends on the design of the motor and also on the exact character of the fuel used, but a general safe average for modern cars and modern fuel would be about 80 lb. gage.

Buick cars have never been troubled with compression knocks and we are quite certain that you will find the knock you describe elsewhere. It may be due to carbon or incorrect timing of the spark, a missing cylinder, too weak a mixture, or some minor mechanical defect. It would hardly be a loose connecting rod or main bearing, inasmuch as it is a dull thud, but it might be a bent camshaft or crankshaft or connecting rod, or something of the sort.

THREE ACCESSORIES

There are, let's see—one, two—yes, there are three things in our accessory store that you ought to have on your car before you drive very far. If you drive without them you are going to want them badly some day and you may do just as several thousand others of us motorists did—delay your wanting until the getting is poor.

Have you a jack? Or do you trust to Providence and a fence rail when you want to change a tire? We have a jack that works in all kinds of ways and doesn't tip over in the mud just when you want it to stand up.

Have you a spot-light? Or do you get out and run over to the side of the road when you want to read a sign? That's only one use of a spot-light. And in the daytime it is a mirrorscope, showing what's coming behind you.

The third thing we have in mind is something new. Just got it in stock. Come in any time and see it.

Overhauling a Ford Axle in One Hour

Page 34

Repairshop Shortcuts

From The Motor World Roadman

(No. 1164) FOREMAN'S DESK

System is essential in the repairshop, but because it is system does not necessarily require an elaborate equipment. An old packing box may be made into a foreman's desk, and a few strips of wood and tin may be used to construct a workmen's time and work card filing rack. The blank cards are always available, and clean. Any of the workmen's cards may be seen at a glance, and are in order. A clock should be hung near at hand, so that the men will not have to guess at the time.—W. C. Slicer, Paige-Toledo, Toledo, Ohio.

(No. 1165) GLAND NUT WRENCH

The gland nuts on most water circulating pumps are rather hard to reach, unless a special wrench be used. Such a wrench is illustrated. It is $\frac{1}{8}$ in. sheet metal, filed and ground to the shape shown, and then case hardened. This latter is essential, as otherwise the jaws would spread in use. As a refinement, the handle should be fitted with fiber pieces. Though this wrench was designed for use on the Paige, it has been found equally useful on any cars having the same type of engine.—H. E. Murrey, Paige-Toledo Co., Toledo, Ohio.

(No. 1166) BATTERY FILLING ALARM

A device to facilitate filling Edison storage batteries with distilled water. It may, however, be used on any battery. The water is passed into the cell through a brass tube, from an overhead tank. At the tip of the tube is a fiber plug, containing a central screw attached to one wire of an alarm system. The other wire of the system is grounded on the tube. An adjustable stop, fastened to the tube, regulates the dip of the plug into the electrolyte, and when the electrolyte has risen above the fiber plug, the alarm circuit is completed. The alarm is merely several dry cells, connected to an electric bell, and its ringing indicates that enough water has been placed in the cell.—Fashion Garage, Detroit, Mich.

(No. 1167) VALVE LIFTER

This valve tool is especially adapted to work on the Paige valves. It is of

the tong type, having the jaws so shaped that when closed they may be readily forced beneath the valve washer. The pivot is so placed that the jaws are opened when the handles are closed together, permitting the use of a lock link to hold the jaws in the open position. The ends of the handles should be bent up to prevent loss of the lock link.—W. C. Slicer, Paige-Toledo, Toledo, Ohio.

(No. 1168) SHOP HORSE

This is a simple and sturdy shop horse that has many uses. The ends are cast iron, and have an angle, or L-shaped section, being fastened together by steel side strips. Two holes are drilled in each of the end piece top plates, permitting the work to be bolted in place. The horse can be readily used as an engine stand, rear axle stand, auxiliary jack, or as a welding stand in some grades of work.—Ed. L. Cousino, Grasser Motor Car Co. (Hupmobile), Toledo, Ohio.

(No. 1169) WASH RACK LAMPS

Car washing requires an intense illumination that may be directed to the point of work. An adjustable wash rack lamp is shown, the feature being in the curved tin reflector placed behind the lamps. Both the lamps and the reflector are attached to a long board, hanging alongside the wash rack, that may be raised or lowered by ropes. One such hanging lamp is on each side of the rack, and a fixed wall lamp is fastened to the wall at the end of the wash rack. This style of lamp also makes an effective bench lamp.—John Carey, The Smalley Garage, Toledo, Ohio.

(No. 1170) CLUTCH CLEANING

The clutch of the Paige may be quickly washed out by the aid of this device. It is a 1-qt. can with the top removed, and a copper tube soldered to the bottom. This tube should be about $\frac{1}{8}$ in. in diameter, and is fitted with a valve. The $\frac{1}{8}$ -in. pipe plug is removed from the clutch housing, and a mixture of 1 part kerosene to 2 parts cylinder oil passed through the clutch plate.—W. C. Slicer, Paige-Toledo, Toledo, Ohio.

(No. 1171) ELECTRICAL TESTING

A spark plug testing and lamp testing box is a convenient combination. Several dry cells are placed in a long, narrow box, and connected through a double-throw switch to the testing terminals. One side of the switch throws the two types of lamp sockets into the circuit, and the other side connects the batteries through the spark coil to the plug testing rests. This unit is compact enough to be taken directly to the job.—John Carey, The Smalley Garage, Toledo, Ohio.

(No. 1172) PAIGE CLUTCH COMPRESSOR

A clutch compressor for the Paige consists of two $\frac{5}{16}$ -in. rods, about 4 in. long. One end of the rods is threaded $\frac{5}{16}$ in. S. A. E. standard for about $\frac{3}{4}$ in., and the other end threaded $\frac{5}{16}$ in. standard, for about 3 in. Two $\frac{5}{16}$ in. standard nuts are provided for the latter ends. The studs are caught in the clutch, and the nuts tightened, forcing the spring into the compressed position.—W. C. Slicer, Paige-Toledo, Toledo, Ohio.

(No. 1173) ENGINE STAND

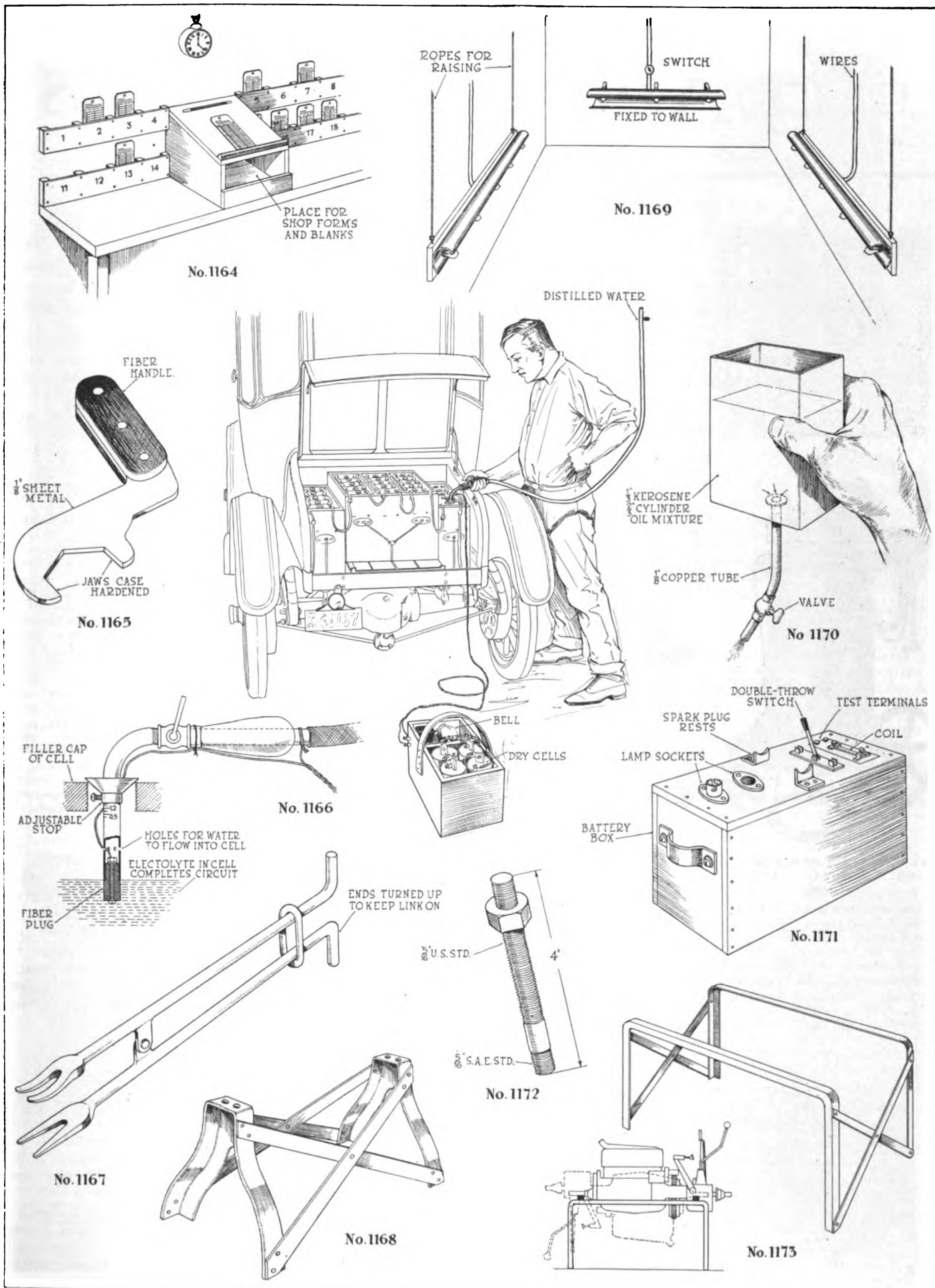
This is a simple engine stand that will take almost any engine. It is 2 in. angle iron, bent into a U-form, and fastened together by cross braces. The engine side arms rest directly on the stand, but a cross bar must usually be fitted under the front of the engine to hold it in place. This stand may also be used for rear axle and gearbox work.—Ed. L. Cousino, The Grasser Motor Car Co. (Hupmobile), Toledo, Ohio.

Shop Hints

A mixture of dirty cylinder oil and gearbox greases makes a good rust-proof covering for parts which must stand idle. These include farm tractors and other farm machinery, spare parts about the shop, etc.

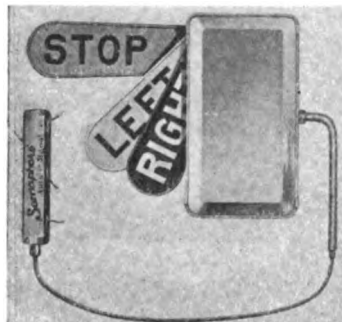
A nut which is hard to loosen may sometimes be started by first tightening on it.

When there is no valve grinding compound at hand, some may be made by pounding up an old bottle.



□ □ Accessories □ □

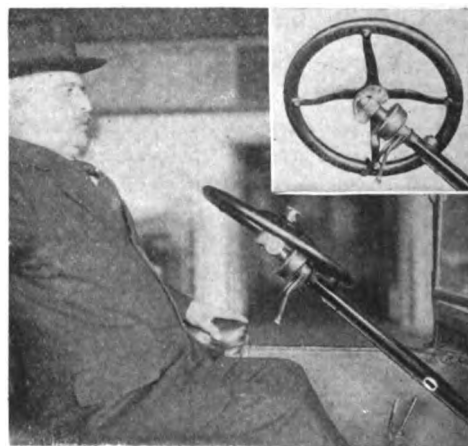
SEMAPHORE SIGNAL AND MIRROR



Three semaphores are concealed in the back of a rear view mirror mounted on the windshield. They are operated by small levers which are carried in a switch box within convenient reach of the driver. Pressing any one lever down operates the desired semaphore. They are lettered respectively Stop, Left and Right, the corresponding colors being red, white and green. Price, \$12.50 attached.—Semaphore Auto Signal Co., 1790 Broadway, New York.

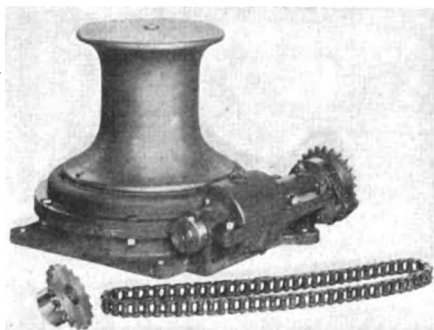
PRESTOTILT STEERING WHEEL

The wheel is tilted by placing a universal joint between the wheel and the top of the steering post. The universal is locked by a plunger and unlocked by pushing a button. It is finished in black enamel and nickel. Price, \$1.75 to \$1.30, depending on quantity.—Prestotilt Attachment Co., Muncie, Ind.



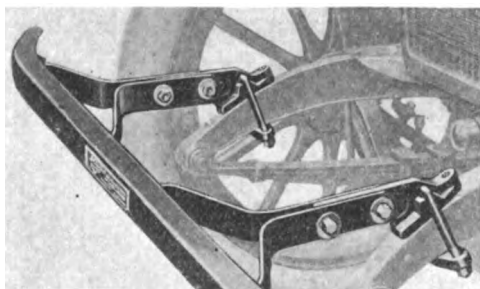
BLACK & DECKER PORTABLE AIR TANK AND PUMP

An air tank fitted with a No. 2 Lectorflator mounted on a strong cradle base supported by two large rubber-tired wheels and one large swivel castor. When empty it may be filled by pushing to the nearest electric light socket. It is finished in green and black enamel, nickel trimmed.—Black & Decker, Baltimore.



MEAD-MORRISON TRUCK WINCH

A winch which may be readily applied to most trucks. It is driven by a chain from the clutch shaft. It has pull of 3,500 lb., a rope speed of 60 ft. per min., and weighs 350 lb. Price, \$350.—Mead - Morrison Mfg. Co., East Boston, Mass.

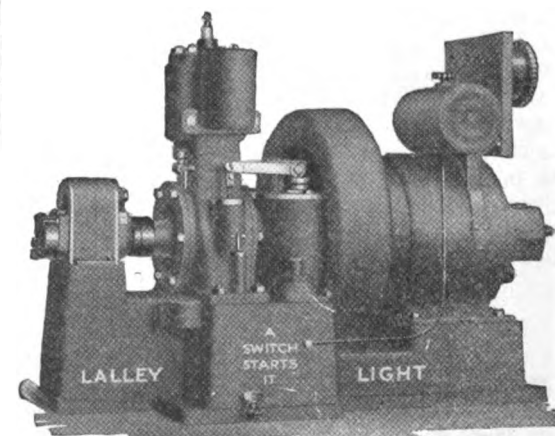


STEWART AUTO GUARD

A bumper in which the shock of collision is taken by two elliptic springs, one mounted on each frame horn. The range of action is approximately 3 in. The frame brackets will fit practically every make of car and enable the bumper to be put in place in a few moments. It is finished in black enamel. Price \$9; \$9.75 west of the Rockies. Special model for Fords, \$7.50; west of the Rockies, \$8.—Stewart-Warner Speedometer Corp., Chicago.

COMMERCIAL BODY FOR FORDS

Mounted on the standard Ford runabout, after removal of the rear compartment. It has a load space 40 x 45 x 50 in. high. The price, \$80, complete, with any lettering.—Beach Cross Body Co., 863 Woodward Ave., Detroit.



LALLEY LIGHTING PLANT

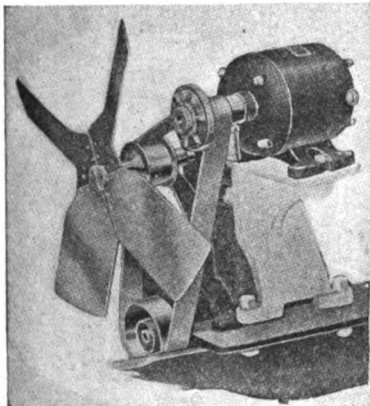
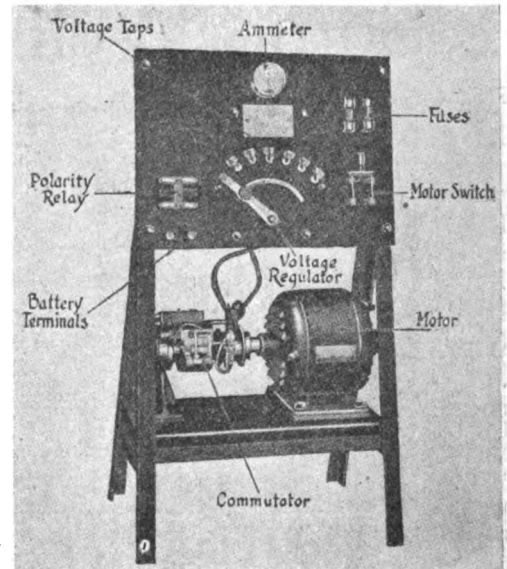
It consists of a two-cycle, three-port engine direct connected to the generator and a sixteen-cell Willard storage battery. The generator delivers 40 volts and lamps are 30 volt, so that allowance is made for a 10-volt drop in the wiring, which enables the current to be transmitted some distance, if required. The engine is started by operating the generator as a motor. The output is fifty 20-watt lamps continuously or eighty-two lamps for a period of 3 hours, using generator and storage battery together. Price \$350.—Lalley Electro-Lighting Corp., Detroit.

**SIMS OIL FILTER**

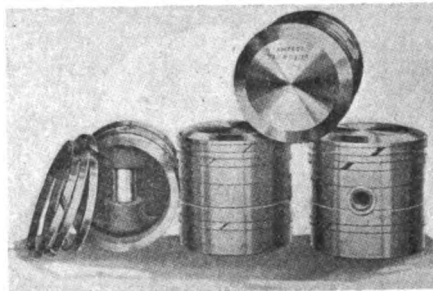
It is not necessary to throw away the oil drained from crankcases with one of these filters in use, as it separates the dirt and leaves a clean oil, which may be used for lubrication again. The reclaimed oil is particularly suitable for gearboxes or rear axles after having been mixed with grease to make it heavier, and may even be used in the motor, although some experts object to this practice inasmuch as it contains some gasoline. Capacities run from 2 to 3 gal. per day up, and prices from \$10 up. The 10-gal. capacity sells for \$20.

LITTLE GIANT CONVERTER

A compact outfit for charging storage batteries, using an alternating current source of supply. The unit consists of a single armature machine which converts the current from alternating to direct. The machine is started by simply closing a knife switch. Equipped with ammeter or ammeter and voltmeter fuses, switches and relay to cut out the D.C. side in case of failure of the A.C. voltage. Price of 500 watt, 10 amp. model for charging from 3 to 36 volts, 3 to 18 cells, \$115 for single phase; \$132.25 for 2 or 3 phase. The model B, a 3 kilowatt, 35 to 40 amp., 75 volt, 24 to 28 cell machine, sells for \$138 to \$193.20.—Little Giant Converter Co., The Arcade, Cleveland.

**NATIONAL LIGHTING GENERATOR FOR FORDS**

A compact, belt-driven generator mounted on a bracket at the side of the Ford engine and driven by a belt, which also drives the fan. Price, complete with all fixtures, including storage battery, but without lights, \$44.—National Electric Lighting Co., Wilton Junction, Iowa.

**AMPECO PISTONS**

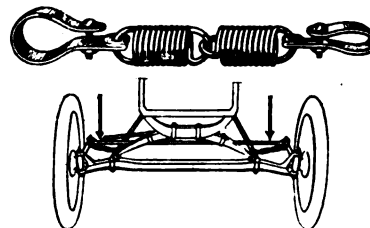
Aluminum alloy pistons which produce smoother running motors. Furnished complete with rings and wristpins for Fords and other cars.—American Machine Products Co., Marshalltown, Iowa.

**SCHOLES PRESSED STEEL GARAGE**

Built in single units in sizes running from 10 x 12 x 8 to 12 x 20 x 8 ft., the prices being \$96 to \$165. Community garages are also made. The different parts of the garage are fastened together with bolts and screws. The windows are hinged to swing outward. Blueprints are furnished for erection.—Scholes Bros., 1241 Reedsdale St., Pittsburgh.

STEADY GUIDERS FOR FORDS

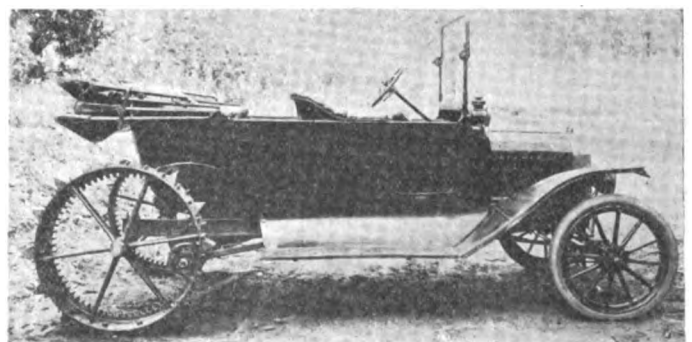
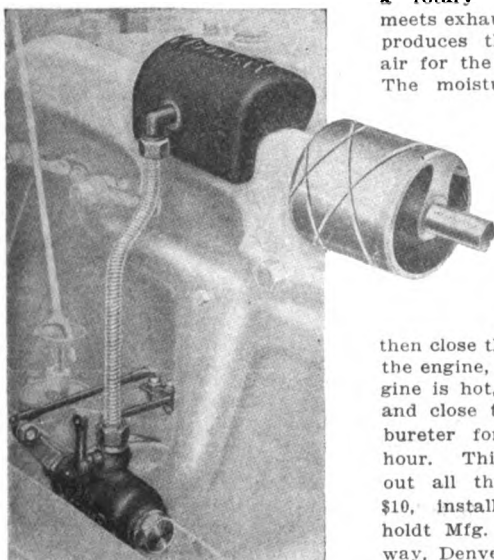
Removes rattle of steering mechanism, back lash, side-sway on muddy or sandy roads, and makes it easier to hold the car straight ahead. Guaranteed for life of car.—W. J. Bailey Co., Newark, N. J.

**MOISTURE CARBURETER**

A moisture carbureter to get more mileage out of gasoline. The water, taken from the cooling system, travels along a tiny groove halfway round the curved surface of a rotary valve, where it meets exhaust heated air and produces the desired moist air for the increased power. The moisture does not go

through the regular carbureter, but meets the gas mixture in the intake manifold. To scavenge the engine open the needle valve wide and get a strong flow of water.

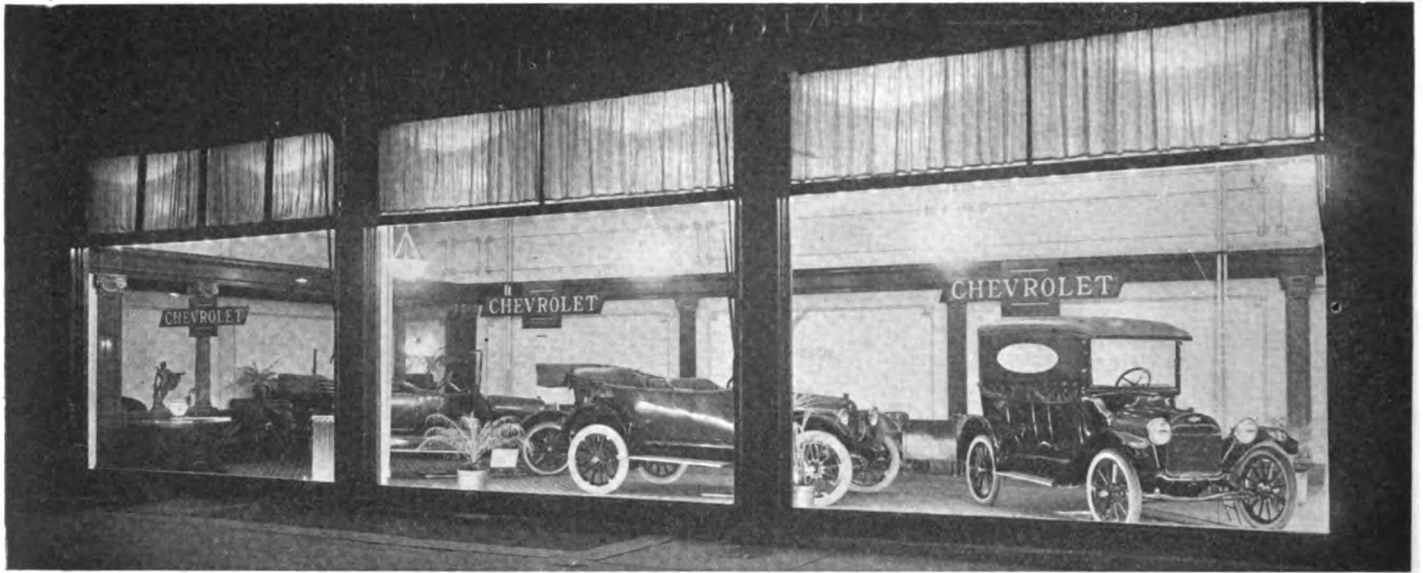
then close the valve and start the engine, and when the engine is hot, alternately open and close the moisture carbureter for about half an hour. This process cleans out all the carbon. Price \$10, installed.—Hayes-Adersholdt Mfg. Co., 1539 Broadway, Denver, Col.

**STAUDE MAK-A-TRACTOR**

An attachment which enables the Ford to be converted into a light weight farm tractor and in combination with another attachment can be used for all sorts of heavy hauling. A special radiator and oiling system is furnished. The tractor can be attached without marring the chassis, and the work is com-

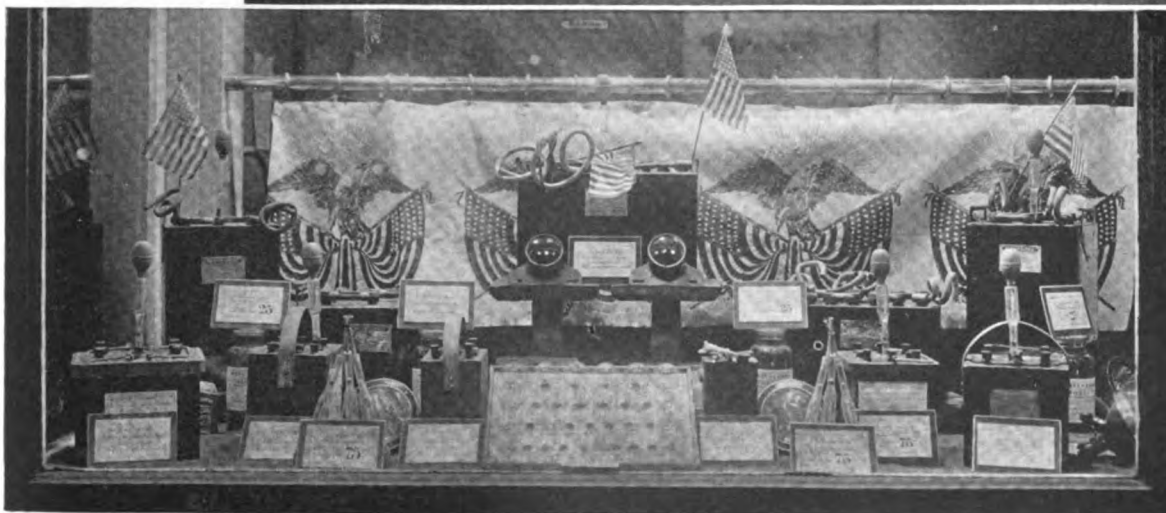
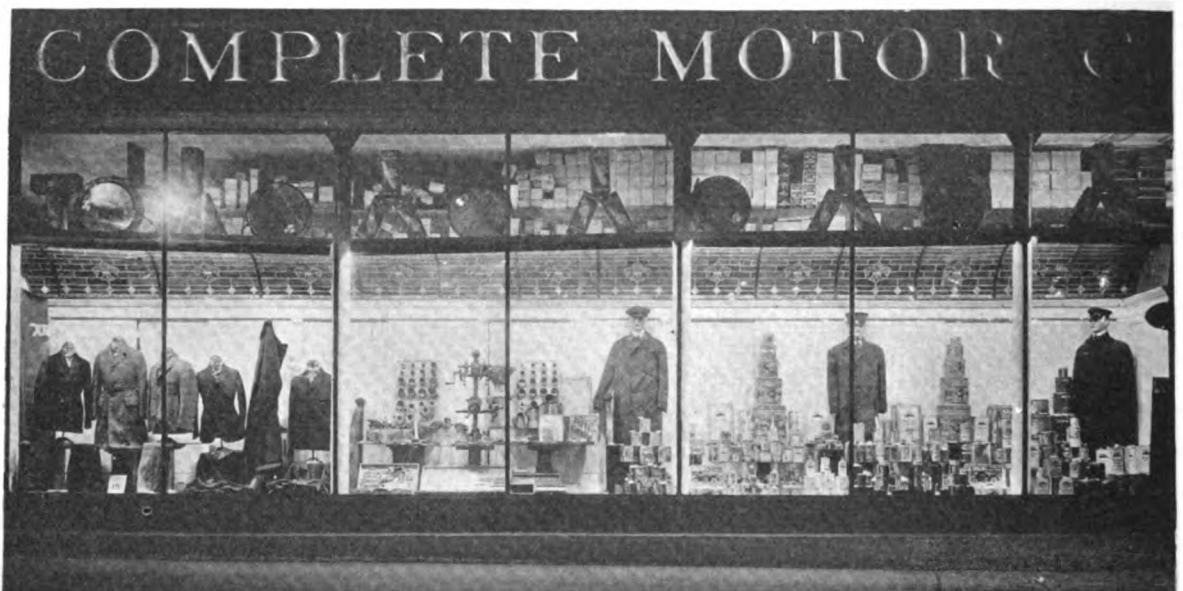
pleted in 20 min., it is said. The tractor attachment consists of large rear wheels and a frame which is bolted to the Ford chassis. Drive is by internal gear on the wheels with the pinions attached to the Ford axle ends. The latter have roller teeth. Price, \$195.—E. T. Staupe Mfg. Co., 2675 W. University Ave., St. Paul.

Some Well-Arranged and Well-Lighted



The Chevrolet salesroom is on a Broadway corner where thousands of people pass almost every minute of the white night. This is the window around the corner from Broadway. Banks of lamps at the bottom, supplemented by overhead indirect lighting, make the salesroom as bright as day

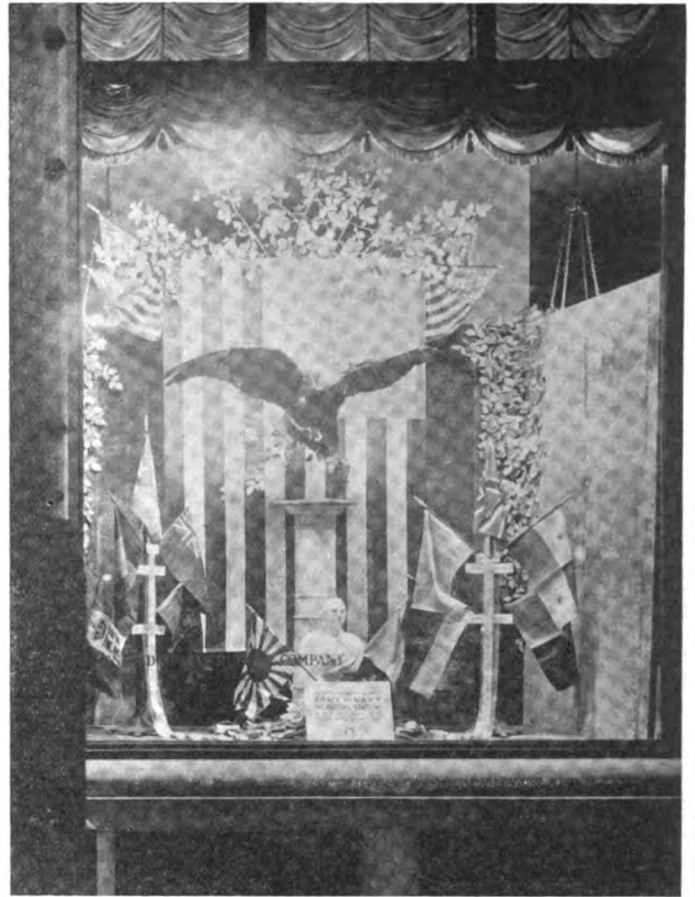
The Lowe Motor Supply Co. also is on a Broadway corner, and this, too, is the window around the corner. The use of space above the main windows is excellent, though it would be better if the stock behind the display were hidden



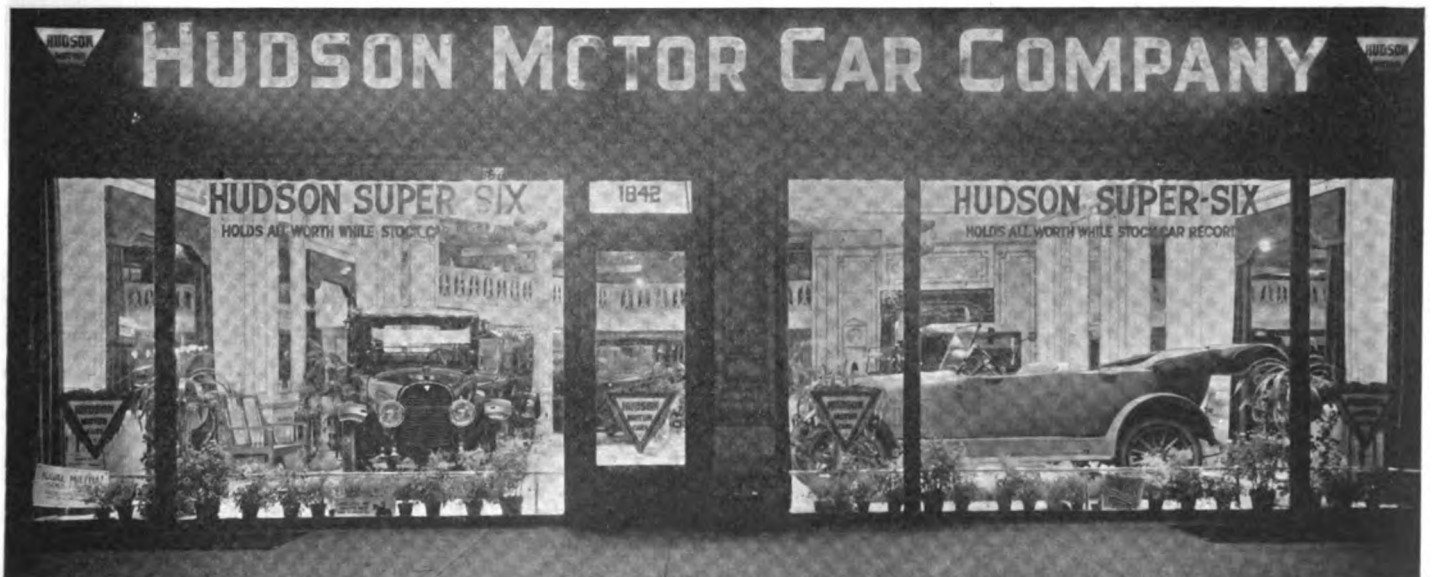
Here is an almost entirely electrical window, and though such accessories generally are difficult to display, this arrangement is excellent. Here are lamp bulbs, lamps, batteries, hydrometers—and flags

New York Salesrooms

These Photographs Were All Taken at Night



Left—Mitchell had a narrow window. So a car was "three-quartered," a neat brass rail erected, two plants put in the corners, and the lights turned on. Judge of the result. Above—The United States Tire Co. forgot all about tires for this display, which is entirely patriotic. Incidentally, the flags of the Allies attracted a lot of attention—and passed it along to the other U. S. windows to the right and left, but not shown in the picture



Hudson has one of the best illuminated salesrooms along the row. Every car stands out as conspicuously as it would under the sun. And note the miniature flower garden effect at the front. These are real flowers and they give a real picture-frame appearance to the windows

Editorial Observation

A Nickel a Minute

ONE of the best examples of what quick turn-over means is the experience of a motor car dealer in Philadelphia. This dealer now has in his place of business 11 used automobiles that have been stored for three months. In other words, they were taken in trade for new cars in December, January and February.

At the time they were taken in they had a certain market value based upon their condition and upon demand. Allowances on new cars were made on this basis. In short, the lot was worth just \$8,000 when the cars were taken in.

To-day this dealer figures that he cannot realize over \$6,200 on these 11 cars. He figures that his failure to turn them over as fast as he received them has cost him a net loss of \$1,800 in three months, \$600 a month, \$150 a week, \$30 each business day, \$3 every business hour, a nickel a minute. If he holds them any longer that loss will mount still higher.

If he had turned them over as fast as he received them, he would have realized \$8,000 on them, and made a little profit. He probably would have had just as many used cars on hand now, but they wouldn't be worth \$8,000. They would be worth \$6,200 because of changing conditions, and he could get \$6,200 for them now.

The experience has taught this dealer a lesson he won't forget. He has made an ironclad rule that used cars taken in trade must be sold immediately—within a week of when they come in. To make this possible he has found it necessary to hire several additional used car salesmen. He now has as many used car salesmen as he has men selling new cars.

In the next three months he won't lose anything on used cars, because he won't make long trades and he won't hold the cars until the depreciation causes a big loss.

Throwing Away Money

THE amount of business secured through mail advertising depends to a large extent upon how the mail matter looks, according to experts in this kind of work.

A poorly printed and filled-in letter makes a poor impression and gets a poor response. A red and yellow poster may do for a circus, but it won't get by with the prospect for a car that claims to have class.

The letterhead is as important as the letter. A botchy letterhead is looked upon as an indicator of the character of the business. Billboardy letterheads, such as manufacturers of cars and accessories sometimes supply

to dealers, are in decidedly poor taste, which seems to be indicated by the fact that the manufacturers do not use them themselves.

If letters are to be used in selling and business promotion they should be well done if full value is to be secured from the expenditure. It doesn't cost much more to do them well than to do them poorly.

Let's Get Down to Brass Tacks

EVERYWHERE men are discussing this used car question. What Motor World thinks about it has been several times printed. Let's have your ideas. You surely have ideas on this subject if you handle cars. If all the dealers in the United States could hold a big meeting and talk about the subject it would help. You can hold this meeting right here in Motor World and the beauty of it is you can all talk at once. Let's have your idea.

It is impossible to write a letter that sounds like a personal missive and have it accepted seriously if the fill-in shows plainly it is a form letter.

Names and initials should be correct. John D. Rockefeller is NOT J. D. Rockefeller or John Rockefeller or J. Rockefeller. He is JOHN D. ROCKEFELLER.

Every man has his correct name and if you change it you are taking liberties.

Attention to these details—which are mighty big details—will stop a leak. You will get better returns from your direct advertising. There is no better time than now to get started right on this work.

One Thing Needed

Editor Motor World: Of the many things needed by automobile dealers that it seemed possible for some trade publication only to accomplish, the work you are doing in connection with the used car problem is certainly the most important; and on behalf of the Albany Automobile Dealers' Association, and of which I have the honor to be president, and on behalf of our own organization, I want to say that every possible co-operation will be given your representatives in connection with this work. If there is any work we can do that will be of assistance to you in connection with it, please be sure and let us know.

I have read with interest Mr. Moskovics' and Mr. Reeves' articles, and certainly no one is in a better position to know of needs of the automobile industry in any particular respect than Mr. Reeves, who has had such a varied and extensive opportunity to study them, and certainly he has overlooked none of these opportunities, and for any dealer to do any more than say "Here, too" would be superfluous in supplementing his opinion.—E. V. Stratton Motors Co., Inc., E. V. Stratton, Albany.

Liked "Initiative"

Editor Motor World: Your article on "Initiative" in the April 4 issue is the best of the many good things that I have seen in MOTOR WORLD. The article on page 40 is another good strong one. More power to you, and call on us for any help we can give in connection with the good work which MOTOR WORLD is doing for the trade.

MOTOR WORLD has become so much more valuable to us in the last year or so that we are increasing our subscription from two to three copies, for use of our organization in order to save time that is usually consumed in passing it around for different members of the organization to read. These three copies will go, one direct to the Service Manager for his department, one direct to the Sales Manager and one to the Executive Office.—E. V. Stratton Motors Co., Inc., E. V. Stratton, Albany, N. Y.

Knows Where He Stands

Editor Motor World: I have been employing your Motor World System of Accounting for the past 3 months, and have a bank clerk of experience in charge. It only requires a couple hours a day of his time to keep everything up to date, and while I believe that an experienced man of this kind spending a couple hours a day will have no trouble with the system, which I have read of in your MOTOR WORLD, and would advise those who don't understand your system to have some one competent take charge.

I never knew what system was before; I know every night now how I stand, every month what is made, and every department. I would never again attempt to run even a peanut stand without a system. I believe that you have a

Letters From MOTOR WORLD Readers

wonderful system for general garage and automobile business and believe that every garage should employ your system of bookkeeping. The only regret I have is that I did not have your system before.—J. E. Walker, Helena, Mont.

Will Be Big Help

Editor Motor World: The writer is very much pleased to hear that MOTOR WORLD is going to do something with regard to the used car proposition, as I believe it will be of more benefit to the dealers than any other problem that might be solved at the present time. In fact, the Albany Automobile Dealers' Association have already started a "Get Acquainted" scheme, so that one dealer will know more about what the other one is doing.—Boulevard Garage Co., J. H. Raynor, General Manager, Albany, N. Y.

A Long-Felt Want

Editor Motor World: We have read with interest your reprint of the article on the Used Car Price Record. There is no doubt in our minds that this record will fill a long felt want among the dealers whose small volume of business makes it difficult, if not impossible, to properly judge the resale value of a used car.

Our valuations are based on the resale value of the car after it has been put through our mechanical, paint and trim shops, the cost of such work being deducted from the resale value to determine allowance to be made customer.

We anticipate valuable assistance from the new department that you are starting.—Earle C. Anthony, Inc., Los Angeles.

One Maker's Sentiments

Editor Motor World: I just happened to notice a letter sent out by our assistant sales manager, Mr. Brooks, and since I thought it might be of interest to you, I am enclosing herewith a copy.—A. J. Rogers, Advertising Manager, Nordyke & Marmon, Indianapolis.

Here's the Letter

To All Marmon Dealers:

Gentlemen: We find that a number of our dealers are getting a good deal of valuable information from Motor World. This magazine in each issue offers merchandising suggestions that should be of interest to everyone dealing

in automobiles, and it is very often that our dealers can get from this publication ideas that are worth a great deal to them.

To those dealers that are not now subscribing to Motor World we are going to suggest that you immediately do so, and if you are subscribing to it we want you to thoroughly read its merchandising columns. Your salesmen also can get some ideas from this publication which will be of much value to them.

It goes without saying that this letter, of course, is written purely in your interests and our own, and not through any particular interest in the publication itself. In fact, they know nothing of our advice in this respect.—Nordyke & Marmon Company, by H. H. Brooks, Assistant Sales Manager, Indianapolis.

Of Immense Value

Editor Motor World: Regarding pages 8 and 9 of the March 28 issue of MOTOR WORLD, I beg to state that, as a subscriber to your paper, I will greatly appreciate and readily find use for your Used Car quotations.

The table will be of immense value to us and you can be sure that we will give you all the co-operation within our power in securing necessary data for compiling your reports.—J. W. Leavitt & Co., L. V. Stair, Vice-president, Los Angeles.

Overland Dealer Outing

PROVIDENCE, R. I., April 28—The sales force and heads of departments of Pugh Brothers, Rhode Island distributors of the Overland and Willys-Knight cars, held their semi-annual outing last Sunday at the Colonial Farm Inn, Plainville, Mass., with Jack Pugh as the host. Six cars conveyed the 25 men on the trip. A chicken dinner was the first event on the program and the rest of the afternoon and part of the evening were devoted to social affairs.

Hartford Boosts Labor Rate

HARTFORD, CONN., April 28—Owing to the increased cost of labor, garagemen have raised the price of labor from 75 to 80 cents per hour. Present indications suggest another advance to 85 cents per hour. There are some garages about town that still charge 60 cents per hour, though they are in the minority.

More Room for Jefferson

CHICAGO, April 28—The Jefferson Electric Co. has moved into larger quarters at 426-430 South Green Street.

Studebakers for Canadian Army

WALKERVILLE, ONT., April 28—The Imperial Munition Board has ordered 32 Studebaker six-cylinder, 50 hp. combination station and passenger cars. These cars are to be put in immediate service at Camp Borden.

The RETAIL NEWS

SOUTHWEST

Vince Reynolds, Waurika, Okla., is opening the Waurika Auto Exchange. He will deal in second-hand cars and do vulcanizing and tire repair work.

W. L. Blanks, Hamburg, Ark., has bought the Ashley Garage.

F. G. Smart Auto Co., Pine Bluff, Ark., Ford dealer, will open branches at Star City, Sheridan and Risen.

The Hess Hardware Co., Walnut, Kan., has put in a line of tires and tubes.

Bishop & Anderson, Webster, Kan., are erecting a garage.

George Sisell, Wayside, Kan., is erecting a vulcanizing shop.

M. A. King, Marshfield, Mo., is building a 20 x 40-ft. addition to his garage.

Judge T. H. Glendon, Ozark, Mo., will build a garage here.

George Prater, Stark City, Mo., will take charge of the garage recently built by Mr. Donovan.

John Ragan, Spickard, Mo., is building the new Shockey Garage. It will be of tile and cement and 70 x 99 ft.

George Mead, Trenton, Mo., Overland dealer, is opening a garage.

J. E. Van Audsall, Wichita, Kan., who has been with the Wichita Automobile Co. for the past 6 years, has severed his connection with them to go into the business for himself.

F. B. Callender, Wichita, Kan., formerly head of the Callender-Cadillac Co., has decided to get into the business again after a year's rest. Under the name of the Callender Tire Co., he has taken over the Kelly-Springfield tire business.

The Tucson Overland Co., Tucson, Ariz., is erecting a new building.

Sam Watkins, Deming, N. M., is remodeling the Auditorium into a garage.

J. E. Foss, Beaver City, Neb., is building a repair- and supply-shop that will be 24 x 60 ft. The VanMatre Garage is being enlarged and when completed will be 36 x 48 ft.

F. Burger, De Witt, Neb., has bought the Feldhus Auto Co.

C. M. Skinner, Omaha, Neb., will erect a 75 x 120-ft. garage.

Hughes-Irons Motor Co., Omaha, Neb., is building a \$25,000 two-story garage.

Frank L. Brown, Trenton, Neb., will erect a 75 x 140-ft. garage.

Unionville Motor Co., Unionville, Mo., Ford dealer, will occupy the new brick and hollow tile, 44 x 112-ft. garage being erected here.

V. V. See, Warsaw, Mo., has opened a garage and repairshop.

L. L. Des Combes, Warrensburg, Mo., has opened The Auto Shop.

The Moon Motor Car Co., St. Louis, is having built at 3115 Locust Street a St. Louis city department. This department will be in charge of F. E. Lindsey, who for a long time has been in charge of St. Louis city sales.

Harry Newman, Inc., St. Louis, has opened a day and night service station for KisselKars.

William E. Moerschell, St. Louis, has been elected president of the Moerschell Electric Co., 2944 Locust Street. Other promotions are Charles J. Kron, vice-president, and H. A. Uhlemeyer, secretary and treasurer.

The Neustadt Auto & Supply Co., St. Louis, has been reorganized, Dr. E. L. Epperson selling his interests. T. J. Mylet has been elected president; Edward G. Rolwing, secretary, and J. O. Tinsley, treasurer and general manager. The new owners are experienced hardware men. They have increased the cash capital to \$60,000 and have redecorated the salesroom at 3200 Locust Street.

The Howard-Zellerbach Motor Car Co., St. Louis, has been organized to sell the Elcar. The company has eastern Missouri and southern Illinois.

The Ames-ton Motor Sales Co., St. Louis, has moved into a specially modeled building at 1315-17 Chestnut Street.

E. W. Abrogast, St. Louis, has resigned as salesmanager for the Park Automobile Co. to form a company to sell the Stauder-make-a-tractor. Associated with him are his brother, Daniel Abrogast and R. A. Ferguson of St. Paul.

The Moerschell Electric & Auto Supply Co., St. Louis, has been appointed southwestern distributor for the Amazon Rubber Co. and has added a service station for the Connecticut Telephone & Electric Co. products.

The Corning Garage, Corning, Kan., was destroyed by fire.

Fred Lindt, Pratt, Kan., is in charge of the new salesrooms of the Grant Sales Co.

F. E. Fitch, Cunningham, Kan., has opened a salesroom for the Chevrolet.

The Elgin Motor Co., Kansas City, Kan., has opened an agency at 829-831 Minnesota Avenue.

C. S. Baylor, Paola, Kan., has sold his garage to C. W. Platt, Sioux City, Iowa.

Harry Warwick, Cheney, Kan., has bought the Ned Poer Garage at Argonia, Kan.

H. W. Voorhies, Kansas City, Kan., has moved his factory to Dodge City, Kan., where he will continue the manufacture of automobile tops, seat coverings and general automobile trimmings.

P. C. Redman, Abilene, Kan., is remodeling and enlarging his garage, adding the Hudson.

Arnold Brothers, Wichita, Kan., have leased the Huyett Building at Salina, Kan., and will handle the Dodge, Chalmers and Marmon.

J. A. Foadick, Dighton, Kan., has rented the old Dighton Auto Co. garage, where he has installed a repairshop.

E. L. Shackelford, Pratt, Kan., has bought the interest of John Shetterly, his partner, and now becomes sole owner of the Pratt Garage.

James Nelson, Salina, Kan., has bought an interest in the McDonald Garage.

Clark Jewell, Paola, Kan., has bought E. J. Haughey's interest in the Paola Auto Co. The new firm, Lucas & Jewell, will handle the Maxwell.

Edward Smith, Ellingwood, Kan., will open a supply house in the Bacon Building, which he is remodeling.

C. C. Drotts, Stockton, Kan., has rented a room on West Main Street, where he will open a Buick agency.

Dr. H. A. Dykes, Smith Center, Kan., has bought the Main Street Garage at Lebanon, Kan.

The E. J. Dougherty Tire Co., Kansas City, has been opened at 1801 McGee Street. It will deal at wholesale and retail in Goodrich, Diamond and Victor-Springfield tires.

NORTHWEST

Wood & White, Wessington Springs, S. D., are remodeling the opera house into a garage.

E. J. Owenhouse, Bozeman, Mont., is building a garage on West Main Street.

Gruhe & Delzer, Arlington, Minn., will build a garage.

J. Pendroy, Balfour, N. D., will convert his livery barn into a repairshop.

Myers Bros., Lankin, N. D., are enlarging their garage.

Lemmon Auto Co., Lemmon, S. D., is building an addition to its garage.

Thoren Manufacturing Co., Eveleth, Minn., has been incorporated at \$150,000 by Oskar Thoren, John Kovaniemi, T. H. Peterson and L. O. Magee.

Farmers Purchase & Sales Co., Valley City, N. D., has bought the North Dakota Motor Co.

Joshua Hatfield, Ellendale, N. D., has opened a garage.

Charles Sutter & Thomas Hovey, Grace City, N. D., have formed a partnership in the automobile business.

Joseph Kilzer, Richardton, N. D., will build a garage.

S. F. Thomas, Egeland, N. D., bought the machine and repairshop in the Egeland garage.

Elwyn Glass, Inkster, N. D., leased the Hanson garage.

B. W. E. Riese, Lidgerwood, N. D., bought the Nibbe interest in the Nibbe & Saumweber automobile business.

Albert Dvorak, Pisek, N. D., has opened a garage.

A. D. LaVictoire, Crosby, Minn., will open a garage.

Seward Peterson, Erskine, Minn., opened a garage.

Backus Auto Co., Backus, Minn., is building a garage.

The Moon Ashley Motor Car Co., Minneapolis, succeeds the Moon Auto Co. as distributor of Moon cars. G. H. Fravert of the latter company has gone to Cedar Rapids, Ia. E. L. Ashley, proprietor of the new company, has opened show rooms at 1120 Hennepin Avenue. He has been for ten years with the Minneapolis Drug Co. J. A. O'Brien, factory representative, will make headquarters with the Ashley company.

Fisk Promotion Co. has succeeded Fisk Sales Co., 252 Plymouth Building, Minneapolis. H. F. Fisk is president and manager. The company represents several automobile accessory manufacturers in promotion of sales of their specialties.

Davison Motor Sales Co., representing the Westcott car in the Northwest, has been formed by P. M. Davison of St. Paul as president and N. W. Carsley as vice-president and manager. Mr. Carsley was formerly with the KisselKar agency in St. Paul. The company has opened in a new building at 1118 Hennepin Avenue.

The Automatic Plug Co. has opened a place of business at 923 Marquette Avenue, Minneapolis, a new building.

Great Northern Motors Co., 101 Tenth Street, S., Minneapolis, is a new company which will distribute the Apperson in Minnesota and parts of the Dakotas. A. M. Choate is president and Miss A. C. Lindquist is manager.

Sales & Exchange Co., 107 Tenth Street, S., Minneapolis, has opened to sell used cars.

G. H. Simons, Montevideo, Minn., has opened a garage.

Narve T. Narveson and F. Knutson, Zahl, N. D., have bought the Axness & Johnson garage.

Walter Dougherty, Park River, N. D., will open a garage.

Carl Stenerson, Portland, N. D., has bought the J. H. Rindy interest in the Portland garage.

Andrew Mygland, Rugby, N. D., will open a garage and machine shop.

Elmer Campbell and George Sly, Watertown, S. D., have bought the H. A. Babcock garage.

Arke Bros., Bemidji, Minn., will build a garage, 40 x 60.

Emil Korhonen, Biwabik, Minn., is completing a garage at Main Street and Cincinnati Avenue.

John Dahlgren, Strandburg, N. D., has opened a repairshop.

General Motor Sales Co., Grand Forks, N. D., has opened in the Jack rink.

Leonard Strong, Pingree, N. D., has bought the H. F. Clark interest in Motor Inn.

J. J. Held, Fairmount, N. D., has bought the Fairmount Garage & Machine Co.

Miller & Urdea, Glen Ullin, Minn., have opened a garage.

Thomas Arnett, Redwood Falls, Minn., has bought the interest of Clarence Foley in the Hammer & Foley Garage.

Ole Bjorncoos, Randall, Minn., has bought the Barney Bentler Garage.

Motor Inn Garage, Pine River, Minn., has been bought by V. J. Sauer from Balfour, N. D.

A. W. Woodworth, Benkleman, Neb., has bought the garage of J. T. Richards & Sons.

A. Ross, Jr., Callaway, Neb., has bought the Carothers & Brittan Garage.

Martin Rollier, Callaway, Neb., has bought a site and will build a garage.

Krenk & Bryan, Dwight, Neb., have sold the Dwight Garage to John Curda.

B. E. Devol, Hastings, Neb., has leased the O-L-D Garage at Imperial, Neb., from A. E. Mathews.

H. A. Friesen, Lincoln, Neb., has bought the Lincoln Garage.

The Tegelberg Auto Co., Ashland, Neb., has been incorporated at \$50,000 by O. B. Tegelberg, G. W. Swanson and Oscar Reese.

Ford & Son, Ashland, Neb., is the new name of the firm in which A. O. Ford has taken his son as partner.

Clarence Brown, Sacramento, Neb., has bought the Ragan Auto Garage.

The 2-in-1 Tire Repair Co., Wahoo, Neb., has opened a repairshop.

N. S. Peterson, Dell Rapids, S. D., has bought the interests of A. W. and H. R. Mohrman in the Dell Rapids Auto & Supply Co.

E. H. Whitehead, Cairo, Neb., is preparing to open a garage.

John Walters, Kemmerer, Wyo., has opened a branch of the Up-to-Date Garage at Cokeville, Wyo.

The Nebraska Tire & Sporting Goods Co., Omaha, has been incorporated at \$15,000 by Willis E. Gray, Marcellus M. Gray, and others.

Sam G. Smith, Plattsmouth, Neb., has bought the garage of Thede Amick.

O. R. Owens, Sidney, Neb., has sold his garage to R. H. Rogers and H. B. Sweet, Denver, Col.

Carey Long, Crawfordville, Iowa, has bought the garage at Wyman, Iowa.

The B. F. Goodrich Rubber Co., Sioux Falls, S. D., branch will open soon.

The Collesum Garage Co., Casper, Wyo., has been incorporated with capital stock of \$50,000. Incorporators are P. J. O'Connor, J. W. Bing, and others.

L. C. Trimpey, Bartley, Neb., has sold his accessory and supply business to James Sterrett, McCook, Neb.

E. R. Chitty, Farnam, Neb., has bought the Farnam Garage from Millard Johnson.

H. A. Farnsworth, Woodbine, Iowa, has sold his repairshop to J. B. Glassburne & Son.

S. K. Denny, Fallsdale, Neb., has bought the Kerr & Long Garage.

The Western Motor Co., Cheyenne, Wyo., has opened a new garage.

The Union Construction Co., Kearney, Neb., has opened a new garage.

The Dierks Co., Ravenna, Neb., has opened a garage.

R. L. Salisbury and J. W. Lee, Wymore, Neb., have bought the Jankins Garage and taken possession.

Charles P. Richard, Anita, Iowa, has opened a tire store.

Gould & Lindsey, Atlantic Iowa, have opened a new garage.

The Union Construction Co., Grand Island, Neb., has opened a garage.

Brady, Howell & Callagy, Creston, Iowa, is the name of a new firm to handle Maxwell sales in southwest Iowa.

Fred L. Buch, Clarinda, Iowa, has bought the Waubonsie Garage from William Wehmuller.

S. L. Hawks, Massena, Iowa, has sold his interest in the Massena Auto Co. to Richard Edwards.

Carl Hollingsworth, Toledo, Iowa, has bought the interests of his partners in the Toledo Auto Co., and will conduct the business alone.

Edward Hamlet, Traer, Iowa, has sold his repairshop to the Kostian Co., and retired from business.

The Van Horne Auto Co., Van Horne, Iowa, has been dissolved. E. J. Wolterdorf bought the interest of J. J. Gallman, and will organize a new company.

Caruth Brothers, Williams, Iowa, have dissolved partnership, John Williams retiring, and selling his stock to his brother James.

A. G. Crawford, Iroquois, S. D., has opened a new Ford garage.

George and Duncan Stalker, Albion, Neb., have bought the Studebaker Garage.

William Van Housen, Aurora, Neb., has bought a building in Hampton, Neb., and will open a garage.

John Hamata, Bee, Neb., has opened a new garage.

David H. Burke, Central City, Neb., has bought the Ford Garage from Ray Clayton.

James Burdick, Giltner, Neb., will open a garage.

B. L. Willmore, Hebron, Neb., has bought an interest in the business of W. D. Luttrell, and the firm is now called the Willmore-Luttrell Oldsmobile Co.

Walter A. George, Omaha, has bought the Harrington Bros. Garage at 1325 Park Avenue.

Edward Richardson, Ulysses, Neb., has bought the Ulysses Auto Co. Garage from G. L. Smith.

Joseph Simmons, Valentine, Neb., has sold his interest in the Valentine Garage to E. B. Connery.

The Walters Auto Co., Casey, Iowa, has opened a garage.

Frank Rekenenthaler, Cushing, Iowa, has sold his garage to Edward Volkert.

Joseph Beard, Ansley, Neb., has bought the automobile and accessory business of D. F. Tooley.

Barton Strand, Uehling, Neb., has opened a garage.

Shanno Matheny and Irl Shelton, Russell Springs, Kan., have purchased the garage from Klagus & Scheibley.

Ed Whiteman, Silver Lake, Kan., is remodeling the lower part of the hotel into a garage.

Botner Motor Co., Turon, Kan., is building a 20 x 30 ft. addition to its garage.

The Briccoe Motor Car Co., Wichita, Kan., is moving from 118 North Emporia to 311 North Main St.

Price & Blocker, Marysville, Kan., are enlarging their repairshop.

Robert Benbow, North Branch, Kan., has opened a garage.

P. A. Martens, Newton, Kan., has purchased his former business, the Martens Motor Co., from Carl Teichgraeber.

Miller's Garage, Overbrook, Kan., is being enlarged.

Ralph Garey, Stafford, Kan., has purchased the vulcanizing equipment of E. M. Sorrell and will open a rubber vulcanizing business in Dave Guy's place.

The Equipment Motor Truck Co., St. Louis, incorporated for \$50,000, has opened salesrooms at 1108-18 North Twelfth St., on lines that are novel to St. Louis. The company will either sell or rent trucks to business houses. Harry J. Dunker, of Chicago, is manager of the company, and W. A. Yackey is sales manager. The lines handled are: Atlas, Atterbury, Winther, Gramm-Bernstein and Bethlehem.

A. K. Haines, St. Louis, has joined the staff of the Supreme Motor Co., of that city, distributor of Stutz, Simplex-Crane and Scripps-Booth cars.

The International Motor Co. has opened a factory branch at 2109 Olive St., St. Louis. W. Gray is manager.

Irvin B. Schiebe, St. Louis, is sales manager of the Miller Carburetor Sales Co. of that city.

The Riley Auto Co., Pine Bluff, Ark., will sell the Smith Form-a-Truck.

The Apperson Motor Sales Co., Little Rock, Ark., is distributor of Harroun cars for that state.

The Ollar-Overland Co., Little Rock, Ark., has moved the Overland service station to 214 Louisiana St. to obtain more space. H. F. Clark, a factory trained expert, has taken charge.

The De Luxe Auto Co., Batesville, Ark., will sell Apperson and Harroun cars.

The Grady Auto Co., Walnut Ridge, Ark., placed an initial order for 20 Smith Form-a-Trucks.

The Voss-Barbee Mfg. Co., Little Rock, Ark., is state distributor for the Osgood and Perrin lens.

The Arkansas Reo Co., Little Rock, Ark., is state distributor for Peerless cars.

S. C. Well, of Pine Bluff, Ark., will sell Apperson and Harroun cars.

The Arcade Motor Car Co., Little Rock, Ark., will sell Roger trailers.

T. J. Wilson, Park Rapids, Minn., is moving into a new garage.

August Helsper, Power, Mont., will open a garage.

Sam Hollan, Park River, N. D., sold his garage and shop to E. A. Patten and Clarence Stark of Grafton, N. D.

French Garage and Repairshop, Plaza, N. D., has been sold to W. E. Biebow of Minneapolis.

F. N. Christman, Monterey, Minn., has begun work on a garage, 48x70.

Campbell & Sly, Watertown, S. D., have bought the H. A. Babcock garage and will operate it.

The Chester Garage, Chester, S. D., has been bought in part by Julius Webber of Corsica, S. D.

P. J. Pint, Redwood Falls, Minn., sold his garage to Dittbenner Bros. of New Ulm, Minn.

Ary De Young, Kasson, Minn., is building a garage.

Geer Wells & Son, Franklin, Minn., are building a cement block garage.

Bars Ingeberg and John Hendrickson, Perth, N. D., are building a garage, 44x60.

John Munro, Rolla, N. D., will build an addition to his garage.

The Kiefer Auto Co., Moorhead, Minn., will enlarge its plant and erect a two-story garage on 25 ft. additional ground.

E. O. Olund and R. M. Soderburg, Duluth, who have arranged to handle the Allen car for the district, have moved from 108 East Superior Street to new quarters built at 447 East Superior Street.

Leiferman Bros., Bridgewater, S. D., have begun work on a \$4000 garage.

Canastota Auto Co., Canastota, S. D., begun work to replace its burned garage.

Johnson & Haverly, Onida, S. D., have begun erection of a new garage.

The Locomobile Co. of America has placed its twenty-ninth branch in St. Paul. Edward Feldhauser, manager, says the company will erect a building. The branch is now at 344-350 N. Exchange Street.

Henry Kampstad, Fosston, Minn., will open a garage.

Baker Bros., Detroit, Minn., sold their garage to H. A. Borstad of Blabon, N. D.

Clifford Groth and Charles Korinta, Ogema, Minn., have opened a garage and repair-shop.

A. D. LaVictoire, Crosby, Minn., has opened a garage.

Brook Park garage, Brook Park, Minn., has been bought by Axel Laursen of Minneapolis and George Jorgensen of Luck, Wis.

William Nelson, Vernon Center, Minn., has opened a garage.

The Lewisville garage, Lewisville, Minn., has been bought by John Draegert of Westford Twp.

Charles Stenerson, Portland, N. D., has bought the interest of J. H. Rindy in the Portland garage.

Johnson & Paulson, Badger, Minn., are remodeling their machine shop into a garage.

Al Melvin, Forsyth, Mont., is building a large garage.

Springer garage, Mayville, N. D., damaged by fire, will be repaired.

Lebseiter & Meng, Reliance, S. D., have started work on a 48x50 garage on Main Street.

E. E. Jenkins, Villisca, Ia., is erecting a new building for a garage to be conducted by himself and Harold Peters.

Bert Olson, Humboldt, Ia., has bought a site for a new garage which he will build for a business to be conducted by Dan Adams.

Frank Montgomery and Ben Phillips, Jefferson, Ia., will start a garage in a new building which is being built for them by Al Battles.

Yeager & Cooper, Primghar, Ia., is opening up a new garage and will sell automobiles and tractors.

Ed. Hastings, Primghar, Ia., is tearing down his old garage and is building a new one, 52x100 and of fireproof construction.

Sidney G. Reade, Sidney, Ia., is opening a general automobile tire repair shop in the Nix Building.

The Malmberg Garage, Pilot Mound, Ia., is being improved by the addition of a display and sales room, 25x60.

The Burlington Motor Car Co., Burlington, Ia., plans a large new garage at Third and Columbia Streets.

R. M. Sanborn, Menlo, Ia., has sold his garage to G. C. Garvin of Van Meter, Ia., who took possession April 10.

The Hawkeye Motor Sales Co., Grinnell, Ia., has been sold to Guy Thompson of Cedar Falls, Ia.

J. H. Garing & Son, Montezuma, Ia., have sold their garage to W. I. Ferguson, formerly in the hotel business there.

The Lacona Auto Co., Lacona, Ia., will build a new garage.

Frazier & O'Brienness, Indianola, Ia., have quit partnership, O'Brienness being now the sole owner of the garage business.

The Schreiber Motor Co., Chariton, Ia., has established a branch Ford garage at Russell, Ia., under the management of R. A. Schreiber.

C. B. McClain, Corning, Ia., is establishing a new garage and will handle Studebakers.

MOUNTAIN

George H. Estabrook, Denver, Briscoe and Hollier distributor for Colorado, Wyoming and New Mexico, has secured the distributing agency for the same territory on the Redden Truck-Maker.

The Motor Equipment Co., Denver, is a new Miles piston ring distributing branch for Colorado, Wyoming and Utah. G. F. Clark and E. E. Stephens are in charge at 430 Eighteenth Street.

The American Vulcanizing Co., Denver, is a new tire repair concern at 1736 Broadway. O. B. Harrison is proprietor.

The Moore-Hardy Tractor Co., Denver, a new firm, has opened a Staude Make-A-Tractor distributing agency for Colorado at 1742 Broadway.

The Adams & Genter Co., Ogden and Logan, Utah, a new \$20,000 corporation, has secured the Utah distributing agency for Delco farm lighting plants, batteries and electric appliances. J. C. Adams, P. H. and A. H. Genter and P. T. Farnsworth are the incorporators.

Guarantee Tire Repair Works, Denver, is a new repair shop and retail tire store at 1746-1748 Broadway.

The Texas Co., Denver, has moved its general offices from the First National Bank Building into the new James H. Brown Building, at Broadway, Court Place and Seventeenth Street, where it occupies the entire second floor. The entrance address is 1669 Broadway.

COAST

W. B. Doan, Portland, Ore., has been appointed distributor of Wilson trucks for the Pacific Coast. His territory will extend from Canada to the Mexican line. A complete service station and depot will be established in Portland.

Studebaker Corp., Northwest branch, Seattle, was opened last week at 511-13 East Pike Street, with Henry Krogh in charge. A complete line of cars and parts will be carried in stock.

The Pine Street Simonizing Station, Seattle, has been opened at 309-11 East Pine Street, by W. C. Conover, J. P. Conover, R. P. Seller and R. H. Powers. The company will specialize in a dry cleaning process for automobiles.

Westlake Tire & Repair Shop, Seattle, has been opened at 2020 Westlake Avenue, by O. Pedersen. Vulcanizing and retreading will be the shop specialties.

Warren F. Powers and F. W. Brehm have organized the Acme Motor Truck Sales Co., with headquarters in Seattle. Agencies will be established throughout Oregon and Western Washington for the Acme truck.

W. M. Thompson Auto Supply Co., Tacoma, has opened at 1210-12 Tacoma Avenue with a complete line of automobile accessories and defiance tires.

Wade & Co., Spokane, have let the contract for the construction of a \$15,000 garage building, 90x100, one-story. E. Newbegin is president.

The Harry L. Olive Co., Spokane, recently appointed distributor of the Premier, has moved into its new garage at W. 1523 First Avenue. The company will conduct only a service station in connection with the sales-room and will not run a repair shop. Harry L. Olive and J. Hough are officials of the concern.

The Pacific Kiesel Branch, Seattle, has recently moved from 806 East Pike Street into commodious quarters at 608 East Pike Street.

Howard Auto Co., Portland, Bulck distributor, is having its present building completely remodeled; the entire first floor, 75x100, will be used for display of used cars, improved salesroom for new models and offices. The second floor will be used for parts and service department and shop. George W. Dean is manager.

Motor Car Supply Co., Portland, has taken a warehouse at 13th and Raleigh Streets, where it will store lubricating oil. The warehouse, 50x100 ft., is of concrete, and oil brought in tank cars will be put directly into the storage tanks. F. P. Waring is vice-president, and C. G. Arnold, secretary. The concern also deals in greases and repair parts for Fords.

The Ford Garage, Wenatchee, Wash., has recently moved to new quarters at 116-118 Wenatchee Avenue, where it occupies a 2-story brick and concrete building. The concern carries a full line of supplies and accessories, and is a service station for all makes of cars.

Johnson Bros. Service Company, Preston, Idaho, plans the immediate construction of a big new service station and garage. A feature of the plant will be a commodious ladies' rest room.

The Barnett Auto Body Co., Portland, has established temporary quarters in the Pacific Storage Co.'s building, at East Madison and First Streets. The company plans to establish a factory in Portland.

Bronson Motor Car Co., Olympia, Wash., has recently installed a vulcanizing and retreading plant in its garage.

The Big Bend Motors Co., Ritzville, Wash., has awarded contracts for rebuilding its buildings. Both buildings will be put under one roof with a new front of tapestry brick and plate glass and extensive improvements. A repair shop, 36x100, will be included.

W. B. Doan, Portland, has become distributor of Wilson trucks for the Pacific Coast territory. The territory extends from Mexico to Canada, and dealers will be appointed in every city on the Coast. A feature of Doan's activities will be the equipment and maintenance of a complete service station and depot in Portland.

The Chilcote-Nash Co., Seattle, recently appointed distributor for Jeffery cars and trucks in the Pacific Northwest, has leased temporary quarters at 1530 Broadway, Seattle. Dealers are now being signed in all Northwest cities.

A. S. Eldridge, manager of the Northwest Bulck Co., Seattle, has taken over the territory of British Columbia, Alberta and Saskatchewan for the Bull Tractors and GMC factories. In line with this work, the tractor factory has sent J. E. Williamson of Minneapolis west to work in the new section; J. R. Wright, formerly of Spokane office, transferred to Canada to establish agencies, and E. J. Heyman sent from Western Washington to Spokane.

Canadian Radlax Co., Vancouver, B. C., has been incorporated to distribute Radlax Combo-Shine polish in Dominion of Canada. Radlax is a Seattle product.

George R. Keith has been appointed sales manager of the W. S. Dulmage Motor Co., Seattle, Chevrolet distributor.

Central Agency, Inc., Seattle, Ford dealer, has completed plans for construction of a 2-story garage at Tenth Avenue and Broadway Place. The structure will be 68x120.

The Bend Garage Co., Bend, Ore., will occupy a new 2-story garage, 60x150, which will be built by P. R. Brooks of Bend for the concern.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Cars Specified But Not Delivered

Editor Motor World: I will ask you a few questions about selling cars. I have a contract with the — Motor Co. to furnish me cars. It is a fifteen-car contract. They started in December, 1916, writing me to take our buyers' order and signed by the buyer himself, and they kept writing and saying that I had to get the buyers' orders for immediate delivery for March and April in carload lots, and they haven't sent me any cars and all they want to send is two cars through the — company, and I have two cars that are supposed to be delivered the 20th of April or give back the money.

It will be a big damage to me if I don't get the cars between now and May 1. They made me understand that I must get them orders at once and get immediate shipment or I couldn't get any more cars. The most of this order was put up in March.

I have ordered two cars for my business Feb. 15, 1917, and I sent twelve buyers' orders, and paid a deposit for the twelve cars for immediate shipment—that would be March and April—and now they want to ship me only two cars and it would be impossible for me to deliver them through to Bangor and it will be impossible for me to deliver them for a long time.

Must Have Cars

I contracted to do work, hauling and trucking, which I will not be able to do unless the — Motor Co. furnishes me the cars I ordered for myself. If they hadn't written and said they would give immediate delivery I would not find any fault. I am willing now, if they will send me a carload by the 1st of May, I could pull through all right. Please advise what I could do if I don't get the first carload, as it will be a big damage to me. Please advise what is best to do.—S. J. Oakes' Garage, West Enfield, Maine.

Answer—Some time ago the Court of Appeals of Georgia decided that when a manufacturer of motor cars accepts orders and agrees to ship them he becomes liable for the amount of the loss caused to the dealer by a failure to carry out his contract.

The dealer estimated that he would take delivery of not less than thirty-six automobiles between the date of the contract and Sept. 30, 1913; and, further, that he would purchase a specified number of automobiles during each of the months covered therein, and by an express agreement it contained, provided that the failure on the part of the dealer to purchase the number of automobiles in any one month should give the manufacturer the right and privilege to cancel the agreement, such privilege, however, being the limit of liability for such failure on the part of the dealer.

A further provision that failure on the part of the manufacturer to supply the dealer with the number of automobiles in any one month would give the dealer the right and privilege to cancel the agreement, which right was to be the limit of liability for such failure on the part of the manufacturer.

Dealer Can Cancel

During the life of the contract the dealer ordered seven automobiles. His order was accepted by the manufacturer and he thereupon ordered a roadster from the manufacturer's manager in Atlanta, Ga., which order was also accepted and a promise was made that it would be filled at a time subsequent to the expiration of the contract between the dealer and the manufacturer. Instead of filling the orders, however, the manufacturer declined to ship any of the seven automobiles.

The court held that, although under the contract the dealer had the right to cancel the agreement, and that right fixed the limit of liability on the part of the manufacturer for such failure to deliver the cars, and accepted orders were subject to delay occurring in the manufacture or delivery of cars from any cause whatsoever, the manufacturer was, nevertheless, liable in damages in a case of this kind, as, although it was the manufacturer's privilege to decline orders, it could not accept them and then fail to fulfill its obligation. 89 S. E. (Georgia), page 430.

I think the facts in your case are so similar to the facts in the case set out above, that you had better consult a local attorney and see if he would advise suit under the circumstances.

Washington Garagemen Have a Lien

Editor Motor World: A car was left at our garage for storage in December, 1915. There never has been any storage paid upon it. Another person has a mortgage on the machine for \$100, plus interest.

Have we the right to sell the machine for storage and apply what is left on the mortgage, or does the person holding the mortgage have a first claim upon the machine, and do we have to take what is left from the sale?

Can the person holding the mortgage remove the car from our possession without first paying storage?—H. P. Rasmussen & Son, Kent, Wash.

Answer—In Washington, persons extending labor, skill or materials on articles of personal property at the request of the owner have a lien upon such chattels for the contract price of their labor and materials or for the reasonable price of their services for a period of one year, providing that they file notice of their claim within 90 days from the date of delivering up the chattel and institute an action to foreclose their liens within 90 days after filing notice of lien. (1 R. & B. C., Sections 1154, 1157.)

Under the above law it would seem that a dealer has a lien providing he files his notice within the required time, no matter how long the charges have been running. The right to sell would only come after an action to foreclose the lien had been instituted.

Some states have decided that a chattel mortgage comes before a lien and others have decided that a dealer's lien comes first. I have no knowledge of any Washington case on this point, so I cannot call your attention to it. Of course, you cannot bring an action to foreclose a lien yourself, but will have to employ a local attorney.

Used Car Price Record

Look on Page 39

A Department of Better Mechanics

No. 21

Complete Ford Rear Axle Overhaul in One Hour

A Standardized System That Could Be Applied to Many Cars

BY the use of special tools and equipment, the workmen of the Swaney Automobile Co., of Fort Dodge, Ia., have often overhauled a Ford rear axle in less than 1 hour.

By overhauling is meant removal of the axle, tearing down, removal and replacement of defective parts, assembling of the axle and replacing it in the car. All of this work was done in this time by one man, unaided.

Speed work in overhauling a Ford rear axle is as much a question of special tools as of proper sequence of steps and efficient workmen.

In addition to the regular Ford bit brace socket wrenches common to every Ford shop, the following special tools and equipment are used.

1—A quick-acting rear axle jack and truck. This jack, Fig. 1, is triangular in form. The base is $2\frac{1}{2}$ in. angle iron, bolted together and mounted on swiveled castors. Two strap iron supports are used to carry the axle, and a steel handle is used as a lever to force the supports beneath the axle, raising it from the floor.

2—A speeder wrench, Fig. 3, styled a jew speeder wrench, used in removing the $\frac{5}{16}$ -in. flange nuts and bolts holding the two halves of the axle housing together.

3—A $\frac{3}{8}$ -in. brace socket wrench, Fig. 2, having a 6-ft. handle. With this the

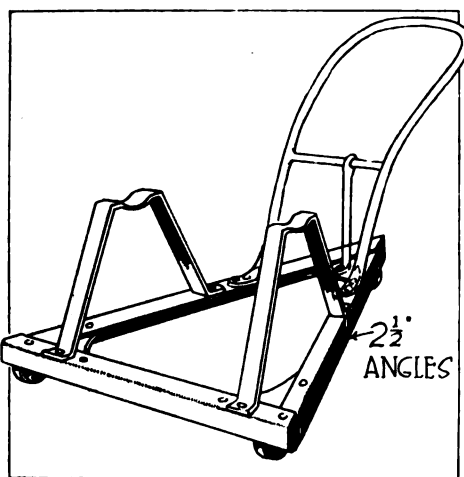


Fig. 1—Quick-acting rear axle jack and truck

universal flange nuts are removed from the rear, without the necessity of the workman getting under the car.

4—A $\frac{7}{16}$ -in. socket wrench, having a $4\frac{1}{2}$ -ft. handle, and used to remove the torque tube retaining nuts after the axle has been placed in the axle stand, Fig. 5.

5—Two auxiliary jacks, used to support the car, and placed beneath the runningboards. One of these jacks is shown in Fig. 4.

6—A rear axle stand, Fig. 4, which

comprises two 5-in. angle irons, bolted to the floor and holding the axle in notches cut in the upper end. Cross wedges pinch the axle in place. The drive shaft is supported on a T made of pipe fittings in the manner shown.

7—A rear axle overhauling bench. This is a common wooden workbench, 7 ft. long and 3 ft. wide, covered with sheet metal. At the rear all of the tools necessary for rear axle work are kept on steel racks. When not in actual use, each tool is on its own peg on one of these racks. At the right end of the bench is mounted a common machinist's vise, Fig. 6.

The bench and the axle stand should be so placed that the mechanic can turn from the axle to the bench, obtaining and replacing any of the tools with a minimum of effort.

8—An extra heavy $\frac{3}{8}$ -in. socket wrench, with a square shank. This wrench is used, together with a Stillson, in removing or replacing the bevel pinion retaining nut on the end of the drive shaft.

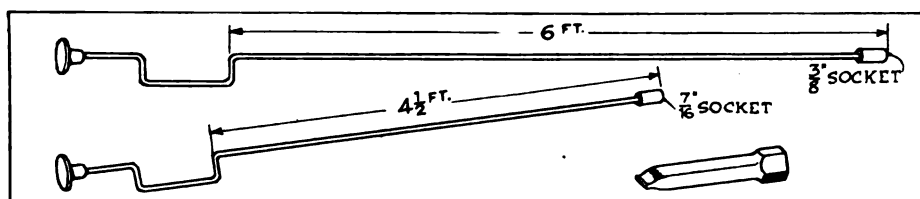


Fig. 2—Six-foot $\frac{3}{8}$ -in. socket wrench for universal flanges

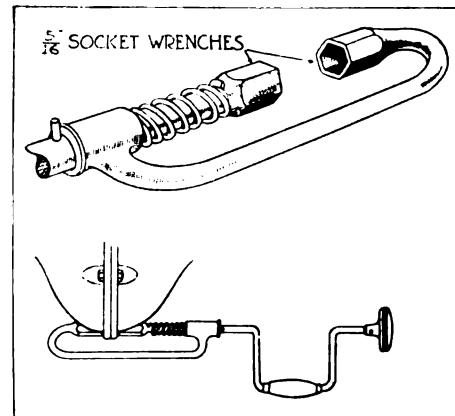


Fig. 3—Jew socket wrench for removing differential flange nuts in record time

Each of the tools needed may be made by the mechanic himself. In fact, they were all made by the Swaney Automobile Co. when standardizing their work.

The following are the steps taken in removing the axle from the car. These operations commonly require 12 min. They are:

- 1—Block the front wheels.
- 2—Lift up the rear of the car and place an auxiliary jack beneath each of the runningboards, Fig. 5.
- 3—Catch the quick-acting jack beneath the rear axle, removing the strain from the springs.
- 4—With a large socket brace wrench remove the hub caps.
- 5—Remove cotter pins from the axle shaft ends.
- 6—With a speed socket wrench remove the axle lock nuts.
- 7—While pulling on the wheel rims with one hand, strike the axle end a smart blow with a hammer. The wheel will pop off. Remove both wheels.
- 8—With a speed wrench, remove the perch nuts from the inside of the brake flange. This frees the axle from the springs.
- 9—Disconnect the brake rods at the front.
- 10—Using the socket wrench, Fig. 2, remove the universal flange bolts.
- 11—The axle is now entirely free from the car. Back out the quick-acting jack, bringing the axle with it.
- 12—Carry the axle to the axle stand and lock it in the stand.

TEARING DOWN THE AXLE

- 1—Using a speeder wrench, remove the nuts at the front end of the radius rods.
- 2—Using the long speeder wrench, Fig. 5, remove the nuts holding the drive shaft to the rear axle.
- 3—Remove the drive shaft and clamp it in the vise on the bench.
- 4—Using the jew speeder wrench, Fig. 3, remove the bolts holding the two halves of the rear axle together.
- 5—Remove the key in the end of the axle shaft, and pull the right half of the housing off. Have a pail under the stand to catch the grease.
- 6—Remove the key from the other axle

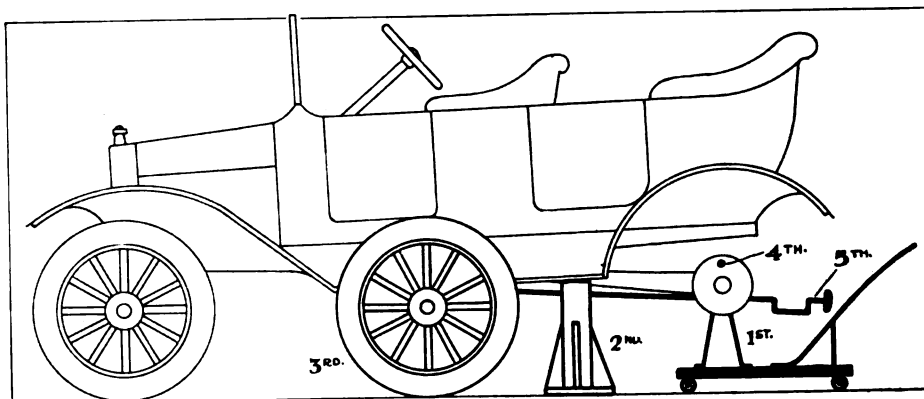


Fig. 4—The five main steps in removing the axle. First—Quick-acting jack truck is put in place. Second—Auxiliary jack which supports car when axle is removed. Third—Rear wheels are removed. Fourth—Spring shackle nuts are removed. Fifth—Torque tube disconnected with long wrench

shaft and draw out the differential and axles.

TEARING DOWN THE DRIVE SHAFT

- 1—Remove the pipe plugs from both the top and bottom of the ball casting at the front of the drive shaft.
- 2—Turn the drive shaft until the pin comes to view.
- 3—Drive the pin out with a prick punch.
- 4—Drive the joint away from the housing.
- 5—Remove the cotter from the pin holding the bevel pinion nut.
- 6—With the $\frac{7}{8}$ -in. heavy socket, having the square shank, as described, remove the castellated nut from the drive shaft.
- 7—Drive off the pinion.
- 8—Pull the drive shaft out.

Clean all parts of the axle thoroughly prior to examination of parts for breakage or wear. All bearings and gears may now be readily inspected. The drive shaft may be placed in the lathe and tested for any bends. The worn or broken part may be readily discovered and replaced.

Ford parts are made standard, and little adjustment is necessary. The differential should turn freely by hand, and the gears should mesh throughout their

tooth length. All must be drawn as tight as possible, and all cotters should be replaced with new ones. The time of the overhauling is commonly 30 min.

Fifteen minutes is required to replace the axle in the car, and have the car ready to run. The operations are the reverse of the tearing down. First, the universal is packed full of grease, the axle slid in place on the truck, and a spark plug wrench used to align the universal shaft and its square hole in the drive.

Throughout the entire work the pieces from any one part are kept together. For example, the housing flange bolts and nuts are placed in one pile, the torque tube nuts in another, and so on. This facilitates assembly, as all parts may be obtained without handling a number of parts not required at that time.

Previous Articles

Subject	Date No. of Issue
Overland—Main and connecting rod bearings.....	1 Dec. 13
Cadillac—Cam and fan-shaft driving chains.....	2 Dec. 20
Maxwell—Rear axle repairs.....	3 Dec. 27
Chevrolet—Clutch repairs.....	4 Jan. 3
Borg & Beck—Clutch adjustments.	5 Jan. 10

Reprints are 10 cents each

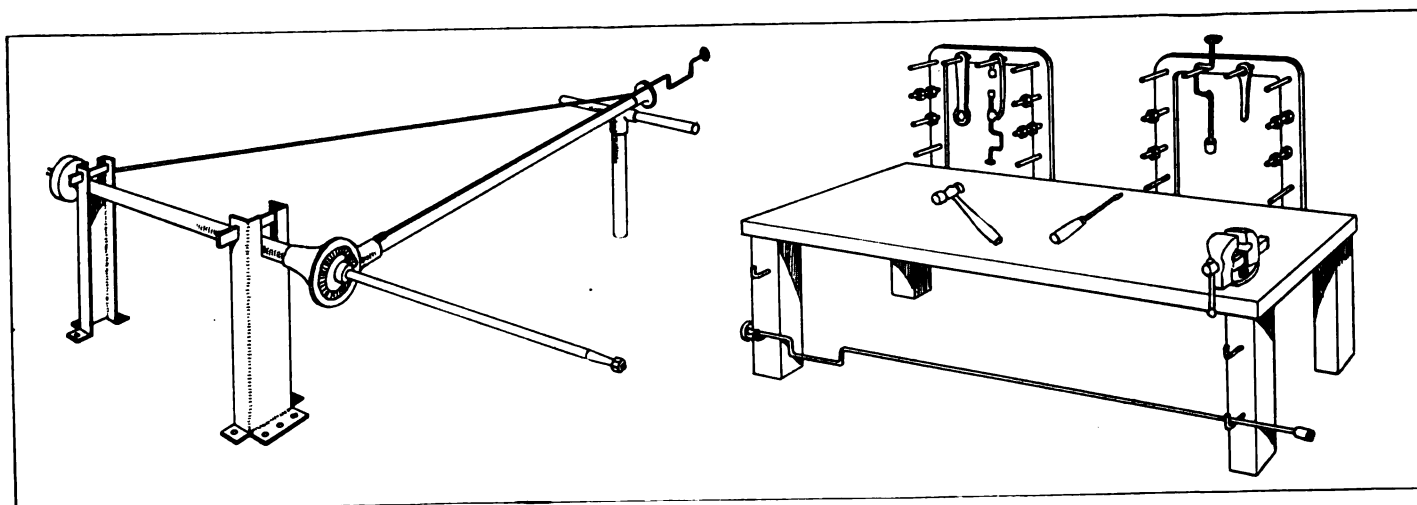
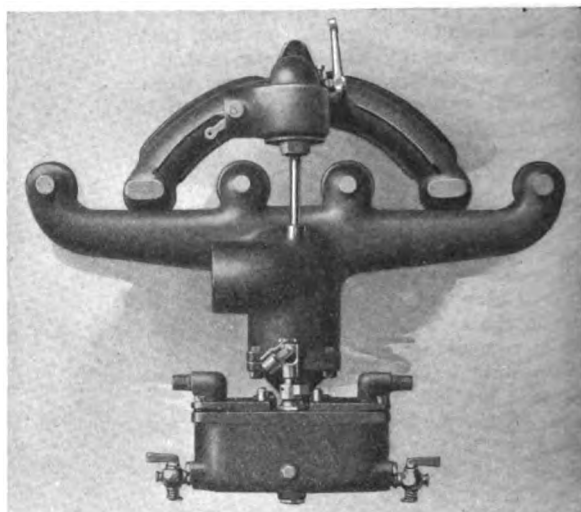


Fig. 5—Left—Socket wrench for removing torsion tube from rear axle. Fig. 6—Right—Rear axle overhauling equipment. Each tool has its place on the racks at the rear of the bench

Holley Kerosene Vaporizer for Fords

*Engine Is Started on Gasoline and Switched to Kerosene Vaporized by Heat—Tests Show Flexibility
—To Sell for \$22*



The Holley kerosene vaporizer for Fords has separate chambers for gasoline and kerosene and is attached to a special type of intake and exhaust manifold

THE Holley kerosene vaporizer, which has been under development for some time, and of which a large number have been shipped abroad, is now ready for the American market. Representatives of Motor World have been given the first opportunity to view the new Holley instrument on test and in operation, and the Holley company is ready to go ahead with the manufacture of this unit on a large scale.

The Holley vaporizer Model 212 is especially adapted to Ford Model T cars. It is designed to start the motor on gasoline and after 1 or 2 min. running to operate on kerosene. The primary principle of the use of kerosene in the Holley instrument is the pre-heating by the exhaust temperature of an extremely rich mixture of kerosene and air, which is subsequently leaned out by the addition of auxiliary cold air.

Separate Float Chambers

Kerosene and gasoline enter their respective float chambers through ordinary float valve mechanism. From the float chambers, either fuel, depending upon the position of the valve V, passes through the needle valve N, and through a jet J, at the top of which it is atomized by an air blast induced by the suction of the motor, the air entering at A1. This is really an aspirating tube, but it has such a small area that the quantity of air admitted is only a small fraction of that required for combustion. This produces a rich mixture.

This mixture of fuel with the primary air is carried upward through a vaporizing tube T seated in the exhaust manifold. This tube is coiled so as to absorb the maximum amount of heat from the exhaust, the temperature reaching 500 deg. Fahr.

From this coil the rich mixture is led directly to the mixing chamber through the stuffing-box B, where additional air is taken in through the air valve A2, which makes the mixture proper for combustion. The opening of the air valve in the mixing chamber is

governed by the suction of the motor and by the opening of the throttle valve. From the mixing chamber the mixture in correct proportions is drawn into the engine cylinders through the inlet manifold in the usual way.

In order to successfully handle the kerosene it is necessary to use a slightly lower compression than that employed in the standard Ford engine. This reduction in compression is accomplished by substituting a low compression head on the cylinders, which brings the compression from about 60 per square inch gage down to about 48 per square inch gage.

It is possible with the kerosene outfit to secure a maximum speed of about 40 m.p.h., and on the dynamometer the maximum horsepower is about 20 per cent less than with gasoline. As regards performance, however, this difference is not noticeable commercially. A test witnessed by a representative of Motor World showed a Ford car operating successfully at 6 m.p.h. with excellent acceleration upon opening the throttle from this speed on high gear.

To apply the Holley Model 212 Vaporizer to Ford Model T cars with left-hand drive the procedure is as follows:

Attach the complete assembly to the motor, using standard gaskets, collars and clamps for this purpose. Be sure the connection of the vapor tube T to the mixing chamber is not loosened, as it is necessary to maintain a gas-tight joint at this point.

Replace regular exhaust pipe with longer one with special bends to attach to connector C, using a standard Ford clamp nut for this purpose.

Replace standard cylinder head with the special low compression head, using special long cap screws furnished with the new head.

Replace the standard gasoline tank with special two-compartment tank to carry the main supply of kerosene and a small quantity of gasoline for starting purposes.

Connect the two fuel tanks to their

respective float chambers, using standard Ford connecting nuts and special lengths of tubing.

Attach dash-plate so that hole for the air shutter wire is just above the lower edge of the original adjusting rod hole in the dashboard.

Use the plate in this position as template for drilling two holes in dash for control rods.

Pass fuel adjusting rod and two-way valve rod through these new holes in the dash and connect them to their respective universal joints by pinning them in place with the small split cotterpins furnished for this purpose. Be sure that the ends of the cotters are bent over so they cannot interfere.

The handle of the two-way valve rod must point toward the word "Gas" when the stop lever on the shifter valve is against the forward stop screw.

Place the throttle rod on throttle lever and make necessary adjustments by means of location of lever to allow throttle to open and close properly.

Pass choke wire through the hole in the dash plate and connect it to the upper end of the intake shutter lever so that with the shutter open the wire handle clears the dash-plate by about $\frac{1}{4}$ in.

Pass the priming wire through the hole below the right hand side of the radiator and connect to lower end of intake shutter lever, leaving the handle clear of the radiator by about $\frac{1}{4}$ in.

Fill small section of fuel tank with gasoline and large section with kerosene.

Starting the Engine

Turn two-way valve handle to gasoline position, close the needle valve W by means of handle, and then open this valve $1\frac{1}{2}$ to $1\frac{3}{4}$ turns.

Open shut-off valves in both fuel lines.

Move throttle control lever 2 or 3 notches from the closed position.

Set spark lever in usual place for cranking.

Turn ignition switch to "On" position. Crank motor, at the same time closing intake shutter by pulling priming wire. This operation is the same as when starting the motor with an ordinary gasoline carbureter.

After the motor has run 1 to 3 min. on gasoline, turn the two-way valve to the kerosene position. If, after an interval of a few seconds, motor tends to decrease speed and stop, pull and release instantly, priming wire projecting through the radiator, or choke wire projecting through dash; i.e., close the air intake shutter momentarily. The motor should then run satisfactorily on kerosene.

Adjust throttle stop set screw so that motor runs at proper idling speed when hand throttle control lever is in closed position.

Adjust needle valve by handle as the same adjustment would be made for the standard gasoline carbureter.

Although the new Holley vaporizer is styled a kerosene device, it will also operate properly using distillate, benzole, low quality gasoline or any hydrocarbon with a boiling point below 600 deg. Fahr. The selling price is \$22 complete and \$3 is allowed for the old parts taken from the Ford engine.

Chalmers Travels 71.7 Miles in 24 Hours

DETROIT, April 28—A five-passenger stock Chalmers completed a 24-hour demonstration test yesterday, during which time it traveled 71.7 miles. The object was to show the minimum number of miles traveled in 24 hours, for the purpose of illustrating the ability of the car to throttle down at low speed on high gear. The car was sealed in high gear. The ratio is 4½ to 1.

During the 24 hours the car stopped four times, two of these due to traffic, one to police, and the fourth due to the engine stalling on an incline. The highest speed made during the 24 hours was 5 m.p.h., made necessary to avoid traffic. The average speed over the 24 hours was 2.9875 m.p.h., or practically 3 m.p.h.

Water used, 2½ pt.; battery reading before, 1280; battery reading after, 1150; lamps used and for how long: tail light and dimmers, 6 hr., headlights, none, dashlight only used while reading speedometer; blew horn five times; tire inflation 70 lb. in rear, 62 lb. in front; United States Royal Cords, 32 x 4; position of choke lever, lean all the way; weight of car loaded, 3,400 lb.; weight of car empty, 2,700 lb.; no knock in clutch; number of stops of car, four; two of these traffic stops, stopped once by police who suggested in driving rain we use headlights instead of dimmers only; two engine stops due to stalled motor on an incline; average

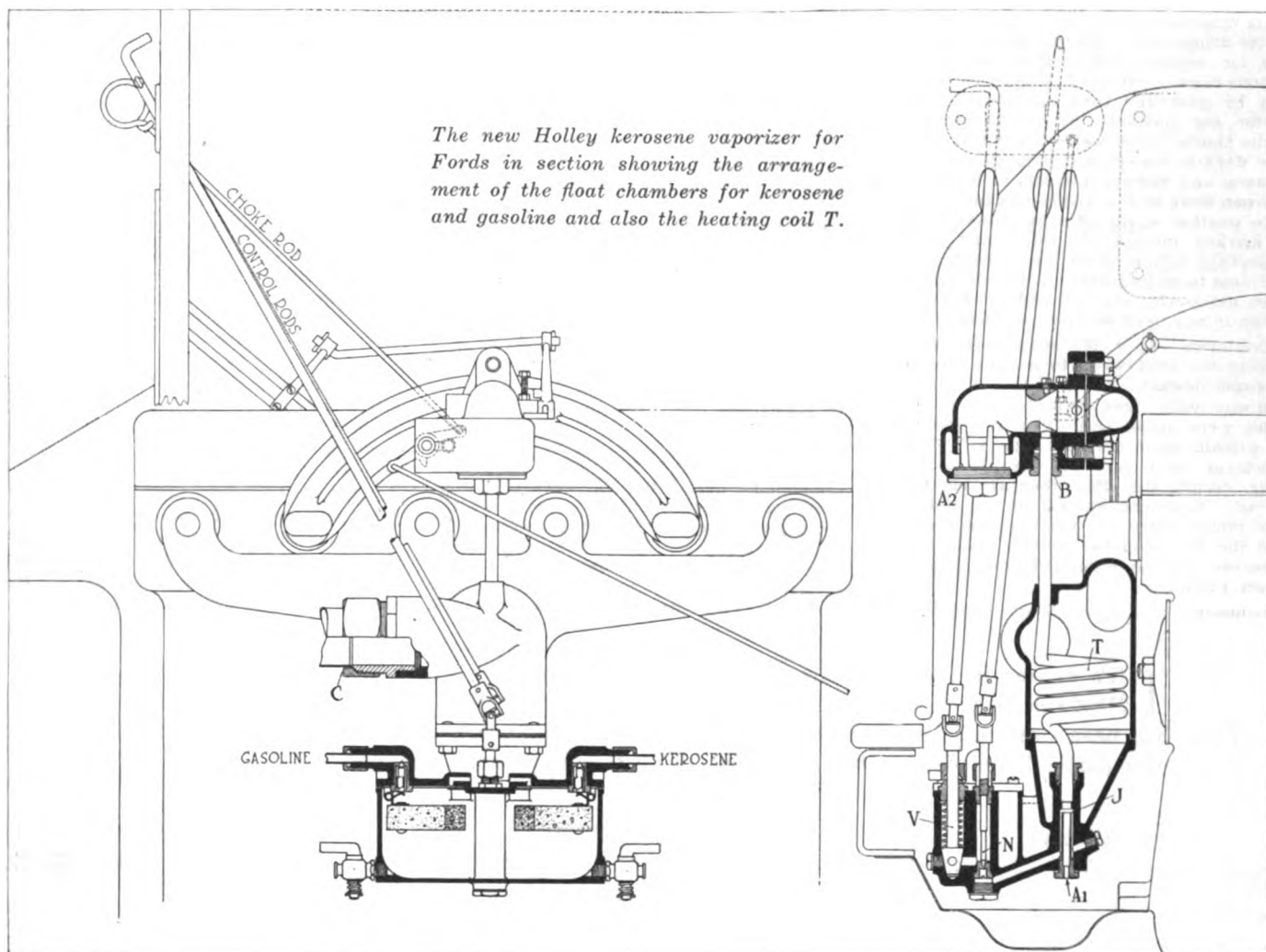
speed, 2.9875 m.p.h.; highest speed, 5 m.p.h., made necessary to avoid traffic; gas consumption, 7 gal., 1 pt.; oil consumption nil; gas mileage, 10.06 miles to gallon; gear ratio, 4½ to 1; distance covered, 71.7; acceleration, 5 to 25 miles in 12 sec.

Inter-County Association in Wisconsin

WATERTOWN, WIS., April 31—Dealers and garage owners in Watertown, Johnson Creek, Ixonia, Oconomowoc, Lebanon, Hustisford and other cities and villages near Watertown, Wis., have organized the Inter-County Automobile Dealers' Association, which will affiliate with the Wisconsin Retail Automobile Dealers' Association. Seven of eight dealers in the city of Watertown are charter members. Officers have been elected as follows: President, Arthur Meyers; vice-president, Harley Whittemore; secretary, Hans Fast; treasurer, Al Frederick.

S. S. E. Ready to Produce

PHILADELPHIA, April 28—The plant of the S. S. E. Co. is completed and will soon be in readiness to make \$5,000 chassis. Victor Lee Emerson, president of the company, states that although nothing will be turned out for several months, the plant is sold ahead for one year.



MOTOR WORLD

Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

A Summary of Used Car Sales Conditions

Albany, April 28—Used car sales have shown some improvement over last week, although dealers say the weather has been against making many sales. With the advent of good weather, however, the dealers expect increased business. More used cars than ever before are coming in.

Denver, April 28—Sales are reported about normal, with some cases of quiet business during the last week and others of a lively increase over the previous week or two. Reasons offered for marked differences range from weather to war, and the latter comes in for double-action credit. One or two dealers, for instance, believe that unsettled conditions cause a general hesitancy bound to be felt by even the used car branch of the motor car business, at least temporarily, while another credits one sale during the last few days to war-caused high wages paid to miners, and expects this sale to lead to half a dozen more soon in the same camp. Favorable weather is cited by one dealer showing a marked increase in sales, and another charges a falling off to the tendency of the business to go by jumps. A few dealers have been practically sold out, and some have not taken in any used cars on new sales.

Baltimore, April 28—Sales were limited during the past week to a little over half a dozen dealers, and with the exception of one sale, which was for \$800, all of the other sales were under \$500. Dealers are unable to explain their failure to get rid of their stock of used cars at this time of the year, despite the effort they are making to do so. A general refusal of the public to pay prices asked for the cars as they are and the failure of the country trade to buy used cars are the principal factors in keeping down business.

Louisville, Ky., April 28—Sales were light

this week. Many dealers report they are exerting every effort not to take in used cars.

Oklahoma City, Okla., April 28—Sales have been unusually light during the past week. There is no apparent reason for dullness. If anything, there has been good reason for an increase in the sales, for there has been an increase in the sales of new cars. The trouble has been that the dealers cannot get the cars to sell. Some dealers are getting their new cars by express. Oklahoma is getting more prosperous, owing to the fact that a heavy general rain fell all over the State last week. The wheat crop is practically assured now.

Hartford, April 28—There has been a decided falling off in sales during the past week. In some instances dealers reported they were about cleaned up and declared their intention to trade light for the next month or two. Fords, Overlands, Buicks and Reos figure prominently in the demand.

St. Louis, April 28—Demand continues good. Most firms which handle their own cars after overhauling and rebuilding are able to sell them as rapidly as they come from the shop. Much of the present demand is believed to be due to the inability of many agencies to deliver as many new cars as they like.

Des Moines, April 26—Business has been very good the past week, due largely to the start of the motoring season. It still remains a little too cool, however.

Indianapolis, April 28—Dealers have been complaining during the last week that their sales have dropped off as a result of the country's entrance into the European war. The man with only \$300 or \$490 in the bank is unwilling to part with the money, fearing developments that might come from the war situation. This statement was made by sev-

eral dealers. One of the largest companies dealing in used cars reported it had made only four sales during the week, declaring that twenty cars a week would be the normal sales. Automobile dealers who have taken cars in trade do not report so much difficulty in disposing of used cars, but admit that sales have been slower than usual for some reason.

Savannah, April 28—The immediate effect of the entrance of the United States into the European war has been not only to put a damper upon the retail trade in automobiles, but Savannah dealers are confronted by the fact that during the past week there has not even been a sale of used cars. A careful canvass of all the dealers elicited the same response in each instance. People are loath to part with their ready money while conditions are still unsettled. Activities of the majority of dealers are confined to accessories departments.

Columbus, April 28—The market has been fairly active during the past week. Sales of quite a few cars have been reported and, on the whole, cars are moving fairly well. The lull in business in new cars was not reflected on the used car market to any great extent. Prices generally have been good.

Minneapolis, April 28—There has been variable this week. Some dealers have had many sales, while several agencies which usually stand up well have none to report. Rain is believed to have affected the business. Another deterrent factor is that May 1 is personal property tax day, which purchasers wish to avoid. Several old-time makes of cars have been sold, which seems to mean that new buyers are in the market. Used car shopping has been prevalent.

THE figures in the tables are the prices brought by used cars sold during the past week. Most sales are quoted "As is." Where an asterisk (*) follows the price, it signifies the car has been overhauled; two asterisks (**) signify partial overhaul. Where more than one sale of a particular model has been reported, the prices have been averaged.

Albany

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CADILLAC—					
4	1911	100	....	....	....
CHANDLER—					
17	1917	....	1000	....	1000†
HAYNES—					
40	1913	350	....	....	....
†Four-passenger roadster.					

ALBANY—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
HUPMOBILE—					
32	1914	275	....	....	....
MAXWELL—					
25	1916	400	....	....	....
MERCER—					
....	1910	....	....	350	....

ALBANY—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OAKLAND—					
32	1916	700	....	....	....
36	1915	450*	....	....	....
43	1913	350*	....	....	....
OVERLAND—					
....	1914	400	....	....	....

THE prices given in MOTOR WORLD USED CAR PRICE RECORD are re-sale prices—not allowances or appraisals. *They are the prices that dealers have realized.*

It is important to bear this in mind when using the Record as a basis for appraisals and allowances. It means, in fact, that in every case these cars were taken in at from \$75 to \$100 less than the re-sale price quoted.

Always deduct at least \$75 as a basis for allowances.

The amount it costs to put a car in a salable condition varies. In some cases it may be as little as \$10 and in others where a complete overhaul is done it may be more than \$100. In any case, overhead must be considered, storage, light, heat, sales commissions, etc. All of these factors make a deduction of at least \$75 imperative.

ALBANY—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
PACKARD—125	1916	1900**	....	....	....
REGAL—	1911	100	....	....	....

Austin, Tex.

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—C38	1915	....	....	620	....
STUDEBAKER—6	1914	380	....	....	....

Baltimore

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHEVROLET—490	1917	450	....	....	....
490	1916	373	....	....	....
EMPIRE—45	1916	750†	....	....	....
MAXWELL—25	1916	375	....	....	....
25	1915	287	....	....	....
OVERLAND—83	1916	470	....	....	....
86	1916	....	800	....	....
1915	....	....	350	....	....
PULLMAN—	1912	212	....	....	....
REO—4	1914	300	....	....	....

†Demonstrator.

Brooklyn

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE—4-38	1916	450	....	....	....
4-25	1915	250	....	275	....
BUICK—D45	1916	700	....	....	....
C37	1915	500	....	....	....
D53	1915	750	....	....	....
CADILLAC—	1916	....	1600**	....	....
....	1916	....	1300	....	....
....	1915	....	1575**	....	....
....	1915	....	850	....	....
....	1914	....	525	....	....
CHALMERS—35A	1916	675	750	....	....
32B	1916	....	500	....	....
26	1915	450	....	....	....
32	1915	550	....	....	....
DORT—	1916	350	....	....	....
....	1915	250	....	....	....
DODGE—	1916	575	....	....	....
....	1915	480	....	....	....
FRANKLIN—	1916	1300	....	....	....
....	1915	950	....	....	....
....	1914	650	....	....	....
HAYNES—	1916	1000	1000	....	....
....	1915	650	650	....	....
....	1914	400	400	....	....
HUDSON—6-40	1915	....	600	....	....
GRANT—	1916	500	....	....	....
HUBMOBILE—N	1916	800**	875**	800**	....
K	1915	525**	....	500**	....
H	1914	475**	....	475**	....
JEFFERY—6	1916	650	....	....	....
4	1916	500	....	....	....
4	1915	325	....	....	....
MAXWELL—25	1916	310	....	....	....
OAKLAND—8	1916	1000	....	....	....
6	1916	550	....	....	....
4	1916	600	....	....	....
4	1915	500	....	....	....

BROOKLYN—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OLDSMOBILE—8	1916	800	....	....	....
4	1916	600	....	....	....
4	1915	425	....	....	....
OVERLAND—83A	1916	367	....	....	....
83b	1916	412	....	....	....
75B	1916	412	....	....	....
86	1916	712	....	....	....
82	1915	400	....	....	....
81	1915	287	....	....	....
79	1914	275	....	....	....
MITCHELL—	1916	650	650	....	....
....	1916	850	850	....	....
....	1915	500	....	....	....
PAIGE—	1916	....	....	750	....
REO—6	1915	....	550	....	....
4	1913	150	....	150	....
4	1912	100	....	100	....
6	1916	450	....	....	....
4	1916	....	....	265	....
6	1915	475	....	....	....
4	1915	....	....	165	....
STUDEBAKER—17-6	1917	....	750	....	....
6	1915	....	450	....	....
4	1915	....	400	....	....
6	1914	....	400	....	....
4	1914	....	325	....	....

Bridgeport

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
DODGE—	1917	750**	....	....	....
....	1916	675†	....	....	....
....	1915	460**	....	....	....
OVERLAND—83	1916	475*	....	....	....
79	1914	....	....	400	....
REO—	1914	475	....	375	....
STUDEBAKER—17-6	1916	....	758**	....	....
6	1915	....	525	....	450

†Winter top.

Chicago

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
COLE—4	1913	....	....	125	....
DETROITER—	1913	500	....	....	....
JEFFERY—4	1917	900*	....	....	....
4	1916	889*	....	986*	....
6	1915	800*	....	....	....
MAXWELL—25	1916	485*	....	....	....
25	1915	350**	....	....	....
MITCHELL—C42	1917	....	1200*	....	....
6	1914	....	....	329	....
OVERLAND—81	1915	450	....	....	....
PACKARD—6	1913	....	950	....	....
STUDEBAKER—4	1915	....	....	....	400**

Columbus, Ohio

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—D45	1916	....	740	775	....
C25	1915	475	....	....	....
CHEVROLET—H2	1915	500*	....	....	....
DODGE—	1917	700	....	....	....
DORT—	1916	375	....	....	....
HUDSON—SS	1916	....	1350	....	....

COLUMBUS, OHIO—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
MAXWELL—25	1916	400	....	....	....
25	1915	275	....	....	....
OVERLAND—81	1915	375	....	....	....
SAXON—6	1915	445	....	....	....
....	1916	....	....	275	....

Denver

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—C25	1915	450*	....	....	....
AB25	1914	350*	....	....	....
CADILLAC—53	1916	....	1600*	....	....
CUTTING—B40	1913	315*	....	....	....
DODGE—	1915	750†	....	....	....
....	1915	650*	....	....	....
HUDSON—SS	1916	....	1325*	....	....
MAXWELL—25	1916	475*	....	....	....
25	1915	360*	....	....	....
OLDSMOBILE—43	1916	730**	....	....	....
44	1916	800**	....	....	....
OVERLAND—85	1917	550	....	....	....
83	1916	445*	....	....	....
75	1916	....	....	475	....
80	1915	475	....	....	....
79	1914	250	....	....	....
PAIGE—6-46	1916	....	1000*	....	....
STUDEBAKER—4	1916	....	650**	....	....
4	1915	475*	....	....	....
WILLYS-KNIGHT—84	1916	....	725	....	....

†Winter top.

Des Moines

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—B36	1914	....	....	475	....
CADILLAC—51	1916	....	1550	....	....
CHALMERS—19	1914	300**	....	....	....
K	1910	175**	....	....	....
COLE—	1914	800*	....	....	....
DODGE—	1915	525*	....	....	....
HUDSON—20	1910	....	....	200	....
OLDSMOBILE—44	1916	887	....	....	....
42	1915	525	....	....	....
OVERLAND—83	1916	400	....	....	....
81	1916	425	....	....	....
75	1914	275**	....	....	....
REO—4	1914	450	....	....	....
STUDEBAKER—6	1915	....	650	....	....
4	1915	....	400	....	....
4	1914	....	300**	....	....

Detroit

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE—8	1916	650**	....	....	....
4	1916	400**	....	....	....
4	1915	300**	....	....	....
BUICK—	1917	800**	....	....	....
CHALMERS—	1916	725**	....	....	....
CHEVROLET—490	1916	337	....	....	....
H4	1916	375*	....	....	....

Note—One asterisk (*) means Overhaul; two asterisks (**) mean Partial Overhaul.

DETROIT—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
DODGE —					
.....	1916	475	....	....	....
.....	1915	375	....	....	....
DORT —					
.....	1916	487**	....	....	....
.....	1915	387**	....	....	....
HUDSON —					
SS	1916	....	1200	....	....
6-40	1914	500*	....	....	....
HUPMOBILE —					
32	1914	400	....	....	....
MAXWELL —					
25	1916	400*†	....	....	....
.....	1916	350	....	....	....
MITCHELL —					
6	1915	500**	....	....	....
OAKLAND —					
32	1916	550**	....	....	....
38	1916	500**	....	....	....
37	1915	400**	....	....	....
35	1914	275**	....	....	....
OVERLAND —					
85	1916	350**	....	....	....
80	1915	437**	....	....	....
PAIGE —					
6-46	1917	....	1000*	....	....
36	1915	350	....	....	....
25	1914	325	....	300	....
REO —					
6	1916	....	765	....	....
4	1915	400	....	....	....
SAXON —					
S4	1917	815**	....	....	....
S2	1916	555**	....	....	....
S	1915	450**	....	....	....
4	1916	....	....	212	....
STUDEBAKER —					
4	1915	....	350	....	....
6	1915	....	475	....	....

†Winter top.

Hartford

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ALLEN —					
.....	1916	475	....	....	....
BUICK —					
4	1915	....	....	350	....
.....	1913	....	....	275	....
CADILLAC —					
.....	1912	312	....	....	....
CHANDLER —					
.....	1916	900	....	....	....
CHEVROLET —					
H4	1916	375	....	....	....
490	1915	300	....	....	....
HUPMOBILE —					
N	1916	975	....	....	....
KING —					
D	1916	900	....	....	....
MAXWELL —					
25	1916	350	....	....	....
METZ —					
.....	1916	400	....	....	....
.....	1914	....	....	150	....
NATIONAL —					
.....	1912	....	....	1200*	....
OAKLAND —					
32	1916	600	....	....	....
.....	1914	350	....	....	....
OVERLAND —					
83	1916	425	....	....	....
75	1916	400	....	....	....
PACKARD —					
32	1909	200	....	....	....
POPE-HARTFORD —					
.....	1913	325	....	....	....
REO —					
4	1916	....	....	650	....
6	1915	575	....	....	....
4	1914	350	....	....	....
SAXON —					
S2	1916	500	....	....	....
STUDEBAKER —					
4	1914	450	....	....	....

Indianapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK —					
D44	1915	740	....	....	....
B24	1914	400	....	350	....
CADILLAC —					
53	1916	....	1350*	....	....
CHEVROLET —					
H4	1916	425*	....	....	....
COLE —					
8	1917	....	....	1345	....
4-40	1916	....	695*	....	....
4-40	1915	495**	....	....	....
4-40	1913	390**	....	....	....
DODGE —					
.....	1916	550	....	....	....
.....	1915	450	....	....	....
MARMON —					
32	1914	450	....	....	....
MAXWELL —					
25	1917	495**	....	....	....
.....	1916	395**	....	....	....

INDIANAPOLIS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OVERLAND —					
86	1916	....	775*	....	....
83	1916	460**	....	....	....
75	1916	450**	....	....	....
PREMIER —					
6	1915	....	....	650**	....
REO —					
.....	1915	550**	....	....	....

Kansas City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE —					
.....	1916	400	....	....	....
.....	1915	310	....	....	....
BUICK —					
C36	1915	....	....	580	....
CADILLAC —					
4	1913	550	....	....	....
CHEVROLET —					
H2	1916	....	....	475	....
DODGE —					
.....	1916	560	....	....	....
GRANT —					
.....	1917	700	....	....	....
MAXWELL —					
25	1910	150	....	....	....
MITCHELL —					
.....	1913	350	....	....	....
.....	1912	250	....	....	....
OAKLAND —					
.....	1915	....	....	235	....
OVERLAND —					
86	1916	500	....	....	....
75	1916	460	....	....	....
PAIGE —					
6-46	1916	937	....	....	....
REO —					
4	1915	450	....	....	....
.....	1911	250	....	....	....
STUDEBAKER —					
6	1916	....	550	....	....
6	1915	....	525*	....	....
4	1915	450*	....	....	....
4	1911	40	....	....	....

Louisville

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK —					
C36	1915	450	....	....	....
CADILLAC —					
.....	1913	....	650**	....	....
MAXWELL —					
25	1917	....	500	....	....
OLDSMOBILE —					
.....	1911	....	200	....	....
PARTIN-PALMER —					
.....	1914	....	....	175**	....
REO —					
4	1915	450**	....	....	....
.....	1911	235	....	....	....
SAXON —					
S2	1916	600*	....	....	....
STUDEBAKER —					
6	1915	375	....	....	....
.....	1911	....	....	175	....

Milwaukee

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ABBOTT-DETROIT —					
.....	1912	100	....	....	....
CHEVROLET —					
490	1917	475	....	....	....
H2	1915	....	....	325*	....
GRANT —					
6	1917	600	....	....	....
HALLADAY —					
.....	1912	250	....	....	....
HUDSON —					
SS	1916	....	1250	....	....
6-54	1914	....	950	....	....
HUPMOBILE —					
.....	1916	800	....	....	....
JEFFERY —					
.....	1916	....	....	775*	....
KISSEL —					
4	1914	450	....	....	....
MITCHELL —					
B6-46	1915	675*	....	....	....
A7-60	1914	....	300	....	....
OAKLAND —					
6	1917	850	....	....	....
OVERLAND —					
79	1914	350	....	....	....
79	1914	400*	....	....	....
PAIGE —					
6-46	1915	....	700	....	....
4-36	1915	440	....	....	....
STUDEBAKER —					
4	1916	....	400	....	....
.....	1914	350	....	....	....

Minneapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK —					
.....	1913	225	....	....	....

MINNEAPOLIS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHALMERS —					
30	1911	250	....	....	....
CHEVROLET —					
H2	1915	325	....	400	....
DORT —					
.....	1916	665	....	....	....
GRANT —					
K	1917	700	....	....	....
HAYNES —					
.....	1914	....	500	....	....
HUDSON —					
SS	1916	....	1100	....	....
HUPMOBILE —					
N	1915	....	....	650	....
JEFFERY —					
4-62	1916	550	....	....	....
MAXWELL —					
25	1915	350	....	....	....
.....	1909	....	....	65	....
OAKLAND —					
32	1916	525	....	....	....
OVERLAND —					
83	1916	....	....	425	....
75	1916	475**	....	....	....
SAXON —					
.....	1913	....	....	60	....
STUDEBAKER —					
4	1914	350*	....	....	....

New York

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1917	800	....	....	....
B24	1914	....	....	150	....
CADILLAC—					
....	1914	500††	....	....	....
††Limousine.					
CHALMERS—					
32B	1916	550	....	....	....
35B	1917	....	800	....	....
35A	1916	500	....	....	....
26	1915	....	400	....	....
24	1914	....	300	....	....
18	1913	150	....	....	....
CHEVROLET—					
H2	1916	300	....	....	....
COLE—					
....	1914	200	....	....	....
DODGE—					
....	1915	350	....	....	....
DORT—					
A9	1917	400	....	....	....
9	1916	300	....	....	....
FRANKLIN—					
9	1917	1550	....	....	....
HAYNES—					
36	1917	1200	....	....	....
28	1914	450	....	....	....
23	1913	400	....	....	....
HUPMOBILE—					
N2	1916	850	....	....	....
32	1914	450	....	....	....
32	1913	....	....	300	....
KING—					
D	1916	750	....	....	....
LOZIER—					
....	1913	....	250	....	....
MAXWELL—					
25	1917	....	....	375	....
25	1915	250	....	....	....
....	1914	150	....	....	....
MERCER—					
....	1915	975	....	....	....
MITCHELL—					
....	1916	400	....	....	....
NATIONAL—					
H12	1916	....	....	1300**	....
OAKLAND—					
32A	1916	465	....	....	....
32B	1916	600**	....	....	....
37	1915	....	....	650†	....
†Speedster model.					
OVERLAND—					
86	1916	....	895*	....	....
83	1916	460*	....	....	....
75	1916	430*	....	435*	....
81	1915	300*	....	300*	....
PAIGE—					
6-46	1916	....	809	850	....
6-38	1916	600*	....	....	....
6-46	1915	....	500	....	....
REO—					
4	1915	450**	....	....	....
SAXON—					
S2	1916	575	....	....	....
14	1916	....	....	250	....
SCRIPPS-BOOTH—					
....	1915	....	....	375	....
STUDEBAKER—					
16-4	1916	....	500	....	....
17-4	1916	....	600	....	625
....	1913	150	....	....	....
STUTZ—					
43	1914	....	....	650	....
WINTON—					
....	1912	350†	....	....	....
†Limousine and touring bodies.					

Oklahoma City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OVERLAND—					
83	1915	450	....	....	....
PAIGE—					
Frfd	1916	....	1100	....	....
Frfd	1915	....	850	....	....
Glnwd	1914	550	....	....	....
....	1913	300	....	....	....
SAXON—					
S2	1916	500	....	....	....
S	1915	300	....	....	....
B	1915	....	....	200	....
WILLYS-KNIGHT—					
84	1916	775*	....	....	....

Omaha

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
APPERSON—					
4	1914	....	....	500	....
BRISCOE—					
....	1916	225	....	....	....
BUICK—					
D44	1916	....	....	650	....
D25	1915	250	....	....	....
CADILLAC—					
....	1914	....	685	....	....
....	1913	325	....	....	....
....	1912	345	....	....	....
HUDSON—					
....	1916	....	1075	....	....
MAXWELL—					
25	1915	325	....	....	....
....	1916	350	....	....	....
OVERLAND—					
83	1916	550	....	....	....
75	1916	450	....	....	....

Peoria

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE—					
....	1915	400	....	....	....
CADILLAC—					
53	1916	....	1500*	....	....
....	1913	650*	....	....	....
....	1912	....	....	467*	....
CHALMERS—					
26	1915	....	850*	....	....
HUPMOBILE—					
....	1915	....	....	650*	....

Philadelphia

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
APPERSON—					
....	1917	....	....	1300	....
BRISCOE—					
....	1915	275	....	200	....
BUICK—					
D55	1916	675	....	....	....
B25	1913	125	....	....	....
CHEVROLET—					
H12	1915	....	....	285	....
DODGE—					
....	1916	....	....	525	....
....	1915	367	....	....	....
FRANKLIN—					
8M	1916	1900*	....	....	....
6M	1915	1250*	....	....	....
KING—					
D	1916	700*	....	....	....
MAXWELL—					
25	1916	475	....	....	....
OVERLAND—					
83	1916	425	....	....	....
....	1913	....	....	290	....
PAIGE—					
6-46	1916	....	750	....	....
REO—					
R	1915	550*	....	....	....
SAXON—					
....	1913	....	....	150	....

Pittsburgh

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
AUBURN—					
6-45	1915	450**	....	....	....
BUICK—					
D44	1916	....	....	650	....
....	1912	150	....	....	....
CADILLAC—					
53	1916	....	1500**	....	....
4	1914	450	....	....	....
4	1913	400	....	....	....
4	1912	350	....	....	....
CHALMERS—					
6-30	1916	550	....	....	....
6-30	1916	750**	....	....	....
6-40	1916	....	750**	....	....
26B	1915	600	....	....	....
26b	1914	550	....	....	....

PITTSBURGH—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHANDLER—					
17	1916	....	1075**	....	....
15	1914	700**	....	....	....
CHEVROLET—					
H4	1916	575	....	....	....
DODGE—					
....	1917	....	....	675	....
....	1916	525	....	....	....
ENGER—					
....	1913	135	....	....	....
MAXWELL—					
25	1916	300	....	....	....
25	1914	200	....	....	....
MITCHELL—					
5-40	1916	....	....	900	....
OAKLAND—					
....	1915	400	....	....	....
OLDSMOBILE—					
43	1916	600	....	....	....
OVERLAND—					
83	1916	425	....	....	....
75	1916	425	....	....	....
80	1915	400	....	....	....
79	1914	210	....	....	....
STUDEBAKER—					
17-6	1917	....	675	....	....
4	1915	400	....	....	....
4	1914	365**	....	....	....
WHITE—					
....	1913	600	....	....	....
WILLYS-KNIGHT—					
84	1916	780**	....	....	....

Providence

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D14	1916	700	....	....	....
B36	1915	500	....	....	....
B24	1915	400	....	....	....
CADILLAC—					
53	1916	....	1600	....	....
51	1915	....	1150	....	....
....	1914	....	650	....	....
CHALMERS—					
6-40	1916	....	800	....	....
6-30	1916	....	800	....	....
CHANDLER—					
....	1916	....	1000	....	....
....	1915	....	700	700	....
COLE—					
8-60	1917	....	1200	....	....
8-50	1916	....	1000	....	....
DODGE—					
....	1916	550*	....	550*	....
....	1915	450*	....	450*	....
FRANKLIN—					
8	1916	1400	....	....	....
5	1915	1100	....	....	....
5	1914	....	....	800	....
HUDSON—					
6-40	1916	950*	....	900*	....
6-40	1915	....	750*	....	....
HUPMOBILE—					
M	1916	....	800	800	....
32	1915	500	....	500	....
32	1914	400	....	400	....
JEFFERY—					
4	1916	....	650**	....	....
KING—					
E	1916	....	1050**	....	....
D	1916	800	....	....	....
MAXWELL—					
25	1916	375**	....	345**	....
25	1915	300**	....	275**	....
MITCHELL—					
C42	1916	750	....	....	....
6	1915	500	....	....	....
OLDSMOBILE—					
43	1916	725	....	....	....
44	1916	....	800	....	....
42	1915	400	....	....	....
OVERLAND—					
83	1916	500**	....	....	....
86	1916	....	700**	....	....
80	1915	475**	....	....	....
PAIGE—					
6-46	1916	....	80*	....	....
6-46	1915	....	740	....	....
4-36	1914	....	550	....	....
REO—					
R	1916	650	....	650	....
R	1915	500	....	500	....
SAXON—					
S2	1916	456**	....	....	....
STUDEBAKER—					
17-4	1916	....	600**	....	....
6	1915	....	500**	....	....
4	1915	....	400**	....	....

St. Louis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CADILLAC—					
53	1912	....	1200*	....	....
51	1915	....	950*	....	....
....	1912	....	....	395	....

ST. LOUIS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
DODGE—					
....	1916	512**	....	....	....
....	1915	450	....	....	....
DORRIS—					
....	1912	....	....	600*	....
HAYNES—					
....	1915	....	850**	....	....
HUDSON—					
6-54	1915	....	750*	....	....
....	1913	....	450*	....	....
HUPMOBILE—					
N	1916	950*	....	....	....
K	1915	750*	....	....	....
PACKARD—					
1-35	1915	....	2100*	....	....
48	1914	....	900*	....	....
PAIGE—					
6-46	1916	850**	....	....	....
4-36	1915	600**	....	....	....
SAXON—					
S	1916	650**	....	....	....
....	1915	....	....	400**	....
STUDEBAKER—					
6	1915	....	....	....	550

San Francisco

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
APPERSON—					
17-6	1917	....	....	....	1400*†
DODGE—					
....	1916	625*	....	625*	....
HUDSON—					
6-40	1916	....	950*	....	....
KING—					
D	1915	750	....	....	....
KISSEL—					
4-36	1915	750*	....	....	....
6-60	1914	....	775	....	....
LOCOMOBILE—					
30	1911	250*	....	....	....
MAXWELL—					
25	1916	450*	....	....	....
NATIONAL—					
6	1916	1295*	....	....	....
OVERLAND—					
83	1916	600*	....	550*	....
81	1915	400*	....	....	....
79	1914	350*	....	....	....
SAXON—					
S4	1915	....	....	200	....

†Four-passenger roadster.

Seattle

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D44	1916	....	....	950	....
C37	1915	750	....	....	....
....	1913	....	....	350	....
CHEVROLET—					
490	1916	540	....	....	....
E.M.F.—					
35	1911	80	....	....	....
FRANKLIN—					
7	1915	1500	....	....	....
MAXWELL—					
25	1917	600	....	....	....
25	1916	550*	....	....	....
25	1914	400*	....	....	....
METZ—					
25	1916	564	....	....	....
....	1915	....	....	450	....
....	1913	....	....	298	....
MITCHELL—					
C7-42	1916	....	900	....	....
OLDSMOBILE—					
....	1914	650	....	....	....
....	1912	250	....	....	....
OVERLAND—					
83	1916	....	....	375	....
81	1915	....	....	525	....
PACKARD—					
....	1910	....	....	450	....
REO—					
....	1915	775	....	....	....
STANLEY STEAM—					
....	1910	....	....	....	500
STUDEBAKER—					
17-6	1916	....	975**	....	1000*
6	1915	....	750	....	....
25	1913	300	....	....	....

Kansas City's Used Car Show Drew 3000 People

Quite a Few Cars Were Sold but Conditions and the Weather Had Bad Effect

KANSAS CITY, April 28—The first used car show and auction in Convention Hall, Kansas City, was held April 24 to 26, with indifferent success. Public interest was not greatly aroused until the last day, and then it rained. Twenty dealers took space in Convention Hall, paying \$25 for each space, some of them using two sections. One auction was held Wednesday afternoon, at which 12 cars were sold, and another auction. Thursday evening, at which 14 cars were sold. Some 40 cars are reported sold by the dealers at the hall, or through the publicity gained in connection with the show. The prices of the cars in the auction ranged from \$100 to \$400, while the cars sold privately ran to a higher average.

Several of the dealers had displayed expensive cars, running in price as high as \$2,000; but these didn't get much attention. Practically all the cars were painted and looked well, although there was a preponderance of the class that is difficult to sell. Many of the dealers report that they disposed of cars they had been holding for some time.

It is roughly estimated that perhaps 3,000 people visited the show in the three days. The chief advantage to dealers was the securing of names of prospects.

There were many visitors from out of town. One instance is related of a man from St. Mary's, Kansas, who entered his car in the auction. It was sold for \$150. The seller discovered that the purchaser lived in St. Mary's also, and rode home with him.

Probably ten per cent of the cars in the auctions were entered by individuals. The management of Convention Hall handled all the details of the show. Practically all the money except that for direct expenses was spent for advertising, in the newspapers and by posters.

While some of the dealers believe in the used car show idea, many hold that the show has been more of a disadvantage than advantage. The exploitation of used cars in quantities is believed to have given the impression that used cars are hard to dispose of, and are poor property. The show caused many prospects to hold off buying; it is an open question whether they were as well satisfied with their auction purchases as they would have been with a deal in a dealer's place of business.

"The used car problem is one which each dealer must work out for himself," said one dealer. "It's one thing that an association can't handle, and that can't be handled by any co-operative movement."

"If a used car show were widely advertised, and handled like an automobile

show, it might be successful," said another.

Four Wheel Tractor Starts

CLINTONVILLE, WIS., April 28—The Four Wheel Tractor Co., which as reported in earlier issues has been organized in Clintonville, to manufacture tractors and trucks in which power is applied to the four wheels, is beginning production, and expects to have twenty tractors out during May. The concern is capitalized with \$125,000, and all the stock is taken up except \$15,000 worth. The tractor is a light machine, designed to haul four plows.

Two Tire Companies Raise Prices

NEW YORK, May 1—The Hardman Tire & Rubber Co. and the Delion Tire & Rubber Co. have taken the first step in the long expected tire price increase. They have raised their prices from 10 to 15 per cent. It is expected that the other companies will follow suit because of the present conditions. Rubber and tire fabrics are advancing again. Yesterday the upward movement in plantation rubber which started late last week received fresh impetus on receipt of cables reporting a further advance of at least a ½ penny in the London market. Added to this is the threatened Government duty of 20 per cent on all rubber imports. The tire fabric mills are all sold up to the end of the year and some contracts with consumers cover part of next year's requirements. The scarcity of Sea Island and Egyptian staples has created an active demand for Peeler fabrics. Standard 17½ ounce Sea Island and Egyptian fabrics are now about 5 cents a square yard higher.

The following prices will give a comparison of the old and new prices on Hardman and Delion tires:

Size	Delion	
	Old Price	New Price
28 x 3, plain.....	\$16.50	\$18.50
34 x 4, plain.....	35.30	38.83
36 x 4, plain.....	37.30	41.03
Hardman		
	Old Price	New Price
	Old Price	New Price
	Old Price	New Price
30 x 3, plain.....	15.00	18.00
34 x 4, plain.....	31.80	37.00
36 x 4, plain.....	34.00	40.00

Overland Four and Six Higher

TOLEDO, May 1—The Overland 85 B-4 has been increased \$45, the three-passenger roadster now listing at \$895 and the five-passenger touring at \$880. The price of the 85 B-6 is now \$1,025 for the five-passenger touring and \$1,010 for the three-passenger roadster, an advance of \$40. Coupes and sedans on these chassis are unchanged. The 85 B-4 is the large four-cylinder and the 85 B-6 is the light six.

Saxon Six Raised to \$935

DETROIT, May 1—The Saxon six touring and chummy roadster are now \$935, an increase of \$70. The other prices remain the same.

Great Northwest Feels Its Duty in World War

Grain Country the Center of World's Food Supply—Need for Tractors Pointed Out

MINNEAPOLIS, April 30—(Special to Motor World)—The importance of this city, and this section, in the solution of the problem of the world's future food supply was emphasized by H. L. Horning of the Naukeshia Motor Co., addressing 75 members of the Minneapolis Section of the Society of Automobile Engineers, because here is concentrated the center of the food supply of the United States and tractor industry. He said:

"The tractor is the solution of the food problem. The difficulty now is to get material and labor for the industry. To increase the supply of tractors is the call of to-day, and any good tractors which we may land abroad to supply food there will help to solve our food problem here."

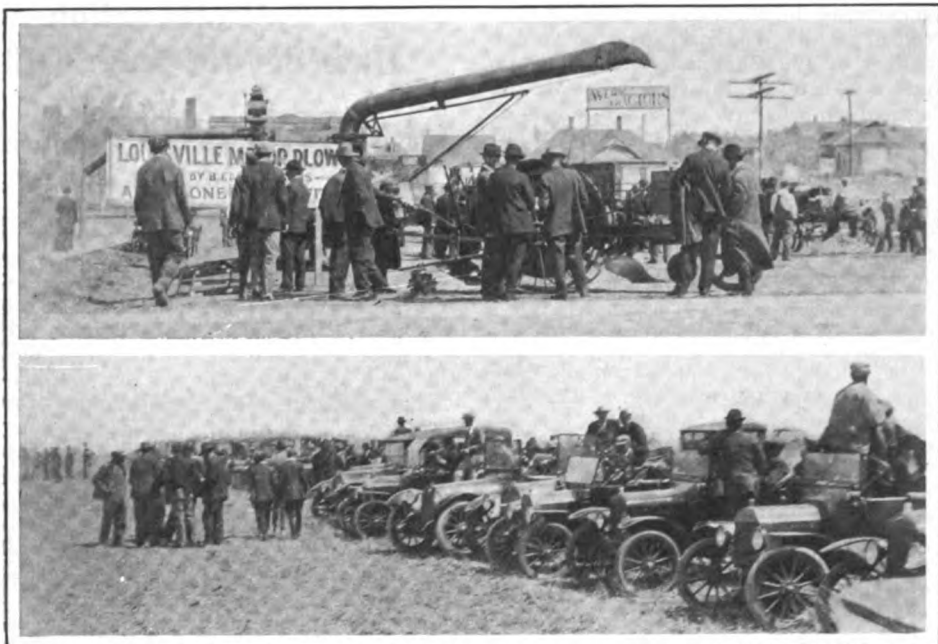
As chairman of the S. A. E. committees on tractors and fuel, Horner reported a conference with the National Council of Defense and its agreement of the importance of the tractor in the food problem as being capable of greatly increasing the crop. He reported progress in standardizing fuels and probable low cost as the result of new processes of cracking. The gist of his morning paper was that the four-cycle, four-stroke vertical type, with the early application of kerosene, is the ultimate type of tractor motor. This should be capable of delivering 16 to 40 horsepower continuously without distress at full load, or over, at from 750 to 1230 revolutions.

Motor Skyscraper for New York

NEW YORK, April 30—New York now has a motor car skyscraper. A modern building, 12 stories high, is at present under construction at 109 to 123 West Sixty-fourth Street, just off Broadway, and will be occupied by 5 large New York dealers. These are the Cutting-Larsen Co., second to fourth floors; Colt-Stratton Co., fifth to eighth floors; Smith Motor Truck Co., eleventh and twelfth floors; Springfield Body Co., ninth floor, and the A. Elliott Ranney Co., tenth floor. The two main floor stores will be occupied by the Cutting-Larsen Co. and the Smith Motor Truck Co. Most of the tenants took occupancy of their new quarters May 1.

Fickling to Store Cars

NEW YORK, April 30—The Fickling Enameling Corp., Long Island City, has added to its plant a department for the storage of cars and bodies. Following are the rates: Closed cars, first month \$12, additional months \$8.50; touring cars and runabouts and chassis, \$10 and \$7.50; closed bodies, \$8 and \$6.50; touring bodies, \$6.50 and \$5. These prices include jacking up cars and supplying covers.



The crowds at the demonstration couldn't even pass a tractor on the street without stopping to investigate

Below—Part of the line-up of motor cars and spectators on the side lines at the demonstration field

First Farm Tractor Demonstration Attracts Dealers

And Farmers Prefer to Do Business with Automobile Men Because of Better Service They Can Give

NORTON, KAN., April 25—Special to Motor World.—The part which the motor car dealer is destined to play in the distribution of tractors was emphasized at the tractor demonstration held here April 17, 18 and 19. This was the second annual event of the kind arranged for Northwestern Kansas by the Northwest Brotherhood of Thresher and Tractor Men with the co-operation of the Kansas City Tractor Club. The latter organization chartered a special car for the occasion and used it as headquarters during the demonstration.

Six of the companies which exhibited were automobile distributors and a majority of their dealers are local dealers. It was gathered from conversation with farmers and dealers that the farmer who bought his tractor from an automobile dealer was better satisfied and was getting more service from his machine.

While the demonstration was intended only to interest Northwestern Kansas, the fact that it was the first one of the season drew quite an attendance from a greater distance. Farmers drove overland across several counties to attend and many were on hand from various sections of southern Nebraska. The record attendance was during the second day, when approximately 700 automobiles were counted on the plowing field. This indicated a crowd of 3500 in round numbers.

Twenty-three tractors pulling sixty-

three bottoms were shown in field work. Weather conditions were such as to put the tractors to a hard test. That section of Kansas has not had a rain or snow of consequence all winter and the ground was dry and hard. The surface was covered with a fine mulch and a wind of 40 miles an hour caused the field to be enveloped in a cloud of fine, gritty dust.

The field was wheat stubble left over from last summer because it was then too hard to plow with horses. A rank undergrowth of Russian thistles covered the ground, making it hard going at the start. This difficulty was overcome by raising the coulters, and, curious though it may seem, it was noticeable that the motor car dealers were the first to realize the necessity of making the adjustment.

Plowing Conditions Were Hard

Despite the unusually hard conditions the tractors gave a good account of themselves. But one of the twenty-three experienced trouble in the cooling system. No other operative troubles were evident. The varying conditions encountered around the national circuit last summer have evidently resulted in many trouble-proof improvements. The field presented diversified soil conditions, which made differences of perhaps as much as 300 lb. in the draft per plow bottom.

Considerable interest was shown by the farmers in the work done by two tractor attachments for Ford cars, which

were shown for the first time. Both pulled two 12-in. bottoms and attained the regulation depths without apparent difficulty. Because of their novelty they led the other exhibits in attention and farmers followed them enthusiastically from one end of the half-mile field to the other.

A large number of them were sold, many direct to farmers, and several agency contracts were made with both automobile and implement dealers, though distributors of these attachments are strong in their assertion that the automobile dealer is their logical retailer. One automobile dealer from an adjoining county obtained an agency and made a deposit for twenty-one attachments.

From a selling standpoint the demonstration was not as successful as it might have been. This wasn't because the farmers are dubious regarding the tractor, but more because of local conditions. All skepticism regarding tractors was removed by a committee of local bankers and representative farmers which witnessed the field work and put their O. K. on every machine shown.

That section of Kansas is about half wheat and half corn. Wheat is not overly promising, though a heavy rain which fell on the last day of the demonstration is expected to bring it to life. Should the wheat look promising two weeks hence, only the normal corn acreage will be planted, and the tractor sales season will await fall plowing. Should the wheat fail, it will result in a larger corn planting and an immediate demand for tractors. The farmers are awaiting developments before buying.

This territory is pretty well covered with tractor agencies, so that not a great many new contracts were made during the week. Of the new contracts they were about equally divided between the automobile dealer and other local agencies. A large number of tractor-owning farmers were on hand and the general consensus of opinion among them was that those who had bought their machines from automobile dealers were better satisfied. The reason they assigned was that they have been able to get service when they wanted it without the arrival of experts from the factories.

The exhibitors and tractors shown at Norton were as follows:

Avery Co., Kansas City, 8-16 and 18-36 tractors; C. H. Bentley Sales Co., Kansas City, Pull-Ford tractor attachment; Big Four Implement Co., Kansas City, Louisville, motor plow; J. I. Case Threshing Machine Co., Kansas City, 9-18 and 10-20 tractors; Dauch Mfg. Co., Wichita, Kan., 10-20 Sandusky tractor; H. A. Dougherty Motor Co., Kansas City, Allis-Chalmers 10-20 tractor; P. J. Downes & Co., Kansas City, Waterloo Boy 12-24 tractor; Emerson-Brantingham Implement Co., Kansas City, Model L 12-25 tractor and Big Four 20-35 tractor; Hall Bros. & Reeves Motor Co., Kansas City, Big Bull 12-24 tractor; International Harvester Co., Concordia, Kan., Titan 10-20 and 15-30 and Mogul 8-16 and 12-25 tractors; Kaufmann-Parrett Co., Kansas City, Parrett 12-25 tractor; Rock Island Implement Co., Kansas City, Heider 10-20 tractor; Staude Mfg. Co., St. Paul, Staude tractor attachment; Tractor Sales Co., Salina, Kan., All Work 12-25 tractor.

Must Have Separators —Court Won't Have Them at All —Dealers

Court of Appeals Says Separator Ordinance Must Be Obeyed— Will Fight for Repeal

NEW YORK, April 28—Garages storing more than four cars must have oil separators, say the courts.

They are unnecessary, inadequate in any case, and an unwarranted expense, say the dealers and garagemen; we won't have them.

Last week, Chief Justice Hiscock of the Court of Appeals in Albany gave as his opinion that the city ordinance which makes separators mandatory is constitutional and correct and that garages should be required to have separators as a measure of public safety. President R. H. Johnston of the Automobile Dealers, Inc., which has been fighting the ordinance, states that the case will be carried further and that the garagemen will not submit to the separator requirement.

The case upon which Chief Justice Hiscock based his opinion has been in the courts for about a year. It was started by the Bronx Garage asking for a peremptory writ requiring Fire Commissioner Adamson to issue a garage permit despite the fact that the garage has no separator. The court refused this writ but stated in effect that the Automobile Dealers Association, Inc., might have a trial by jury to determine whether the law was just and reasonable.

The Corporation Counsel of the City then appealed on the ground that the ordinance was in effect a statute and as such could not be attacked in this way. The Court of Appeals in Albany has now upheld this contention.

Insofar as the courts are concerned this virtually closes the case, though it can still be taken before the Supreme Court of the United States in Washington on a test as to its constitutionality. Such a move, however, is unlikely.

The dealers' association in all probability will again take the matter up with the Board of Aldermen, which body alone has the power to repeal the measure. Some time ago, the board unanimously voted for its repeal, but this was vetoed by Mayor Mitchel. Later it went back to be repealed over the Mayor's veto and though a majority of votes was secured, the move fell through. It is likely now that the dealers will again move to have the ordinance repealed.

Purchasing Agents Form Detroit Social

DETROIT, April 28—A Detroit local branch of the National Association of Purchasing Agents has been formed, the idea being to promote co-operation among the purchasing agents of motor car factories. The national body which is now in its infancy has six local associations, Baltimore and Syracuse having recently been added. The association will hold a

convention in Pittsburgh September 25 to 28. C. A. Woodruff, director of purchases of the Chalmers Motor Car Co. and a director of the national body, was elected chairman of a temporary governing board, other members being J. H. Main, Cadillac Motor Car Co.; F. H. Maisenville, Timken Detroit Axle Co.; H. H. Viot, Continental Motor Corp.; George Berringer, Parke, Davis & Co.; T. F. Thornton, Detroit Steel Products Co.; and H. Hawk, Willys-Overland Co., Toledo.

Motor Men in War Work

DETROIT, April 30—James E. Morgan, secretary and treasurer of the Wallace C. Hood service bureau, has been assigned to the first division of the United States Navy, and is in service on the battleship Iowa. H. G. Moesta, special representative of the bureau, has been transferred for service on United States steamship Columbia, which entered active service April 21 as flagship for the Atlantic submarine flotilla. D. H. Geddis, sales manager of the Scripps-Booth Motor Car Corp., and Herbert J. Woodall, assistant branch manager of the Ford company of Chicago, are also on the Columbia.

Keeling Advertising Manager of Haynes

PITTSBURGH, April 28—H. R. Keeling will become advertising manager of the Haynes Automobile Co., Kokomo, May 7. He has been connected with the merchandising department of the Armstrong Cork Co., Pittsburgh. Prior to this connection, he was for three years a member of the staff of the Indianapolis Star and later was advertising manager of a large Indianapolis motor car distributing agency.

Books

Reading books is one of man's greatest means of progress. The books below have been received and are here reviewed by Motor World.

Desk Book of 25,000 Words Frequently Mispronounced, by Frank H. Vizetelly, Funk & Wagnalls Co., New York. A vocabulary builder and a guide to correct speaking. If kept at one's side when reading books, magazines or newspapers it will, if referred to every time an uncertain word is found, soon make the user an accomplished conversationalist. All of us mispronounce or hesitate to pronounce at all and this book's aim is to set us right.

Salesmanship, by William Maxwell, Houghton Mifflin Co., New York and Boston. Papers on salesmanship once run in Collier's and revised in book form, 230 pages. A reading of the book, which reads easily, should give any salesman more enthusiasm and indicate the way to better salesmanship. Some of the chapters are: "Anything Else To-day?" "Just Looking?" and "The Management of Traveling Men."

Tractor Demonstration Date Set for Aug. 6-10

The Only National Demonstration of the Year to Be Held in Fremont—3000 Acres Available

FREMONT, NEB., April 28—The Tractor Demonstration Committee of the National Association of Tractor & Thresher Manufacturers met here April 20, and officially awarded the one national demonstration decided upon for this year to Fremont. This was done after the Fremont Commercial Club had agreed to all the requirements of the National Association. The dates selected were Aug. 6 to 10, inclusive. A. E. Hildebrand, who was general manager of the demonstrations in 1916, was re-engaged in that capacity.

The committee spent several hours in looking over prospective plowing sites. It was found that approximately 3000 acres, most of which is level, could be had. The headquarters will be established about a mile northwest of the city, a few rods from the Lincoln Highway. It is probable that all the exhibits this year will be housed in one big tent, 90 ft. wide and from 1500 to 2000 ft. long. Fremont will be better able to handle the crowds this year, the new Pathfinder Hotel, with 120 rooms, which is now being built, being scheduled for completion before that date.

Members of the committee attending the meeting were: J. B. Bartholomew, Avery Co., Peoria, Ill., chairman; W. H. Haggard, Emerson-Brantingham Co., Rockford, Ill., secretary; Bradford Brinton, Brand Detour Plow Co., Dixon, Ill., treasurer; P. J. Lyons, Bull Tractor Co., Minneapolis; H. D. Dinneen, Deere & Co., Moline, Ill.; H. H. Bates, Joliet Oil Tractor Co., Joliet, Ill.; Dent Parrett, Parrett Tractor Co., Chicago, Ill.; E. J. Gittins, J. I. Case Threshing Machine Co., Racine, Wis., and A. E. Hildebrand, Bloomington, Ill., general manager.

Doble Dealer in Detroit

DETROIT, April 30—The Owen, Graham & Starkweather Co. will market Doble steam cars in this territory. The new organization will have its quarters with the Owen & Graham Truck Co. Starkweather will have the active management and sales direction but will also continue his present position as branch manager of the Buick Motor Co.

S. A. E. Opens Washington Office

CHICAGO, April 30—A Washington office of the Society of Automobile Engineers will be opened in the Munsey Building in connection with the Council of National Defense as soon as arrangements can be made. This action was brought about by the closer co-operation of the society with the various government departments, which work is increasing every day.

40 Truck Train Crews Are to Enlist at Once

Motor Truck Club Will Have Charge of Recruiting 1360 Drivers— The Requirements

NEW YORK, April 28—Through orders issued by the War Department in Washington and transmitted through Maj. Frank H. Lawton, Quartermaster Corps, Department of the East, the Motor Truck Club of America has been called upon to undertake the work of obtaining the crews of forty motor truck trains for army work. These men are to be recruited into the Quartermaster Enlisted Reserve Corps and will enlist for a 4-year period with but 15 days' compulsory service yearly, if so ordered. They will not be called to active service for the government until such time as an emergency arises.

As thirty-four drivers are to be recruited for each truck train, the total number to be secured will be 1360.

Under the ordinary method of organization one truck train is sufficient to serve the needs of a war time regiment of 2000 men. If 500,000 are to be served, it will require the enrollment of 8568 drivers and 17,136 for an army of a million. This figure does not include the large number of trucks which will be required to furnish ammunition for the guns with which this army will be equipped, and it is estimated that between 35,000 and 40,000 trucks and drivers will be required should the United States eventually send an expeditionary force to Europe.

Under Roderick Stephens, president of the club, who is also a member of the Volunteer Motor Transport Committee working under the advisory commission of the Council of National Defense, committees have already been formed to carry on this work in New York City and in Boston, and other committees are now in the course of formation in Philadelphia and in Atlanta, Ga. The purpose of these various committees is to obtain applicants capable of driving army trucks and of examining such men and passing upon their fitness. The latter work is being done by examining boards working under the direction of the general committee. The New York committee, which will undertake to carry on the work in the States of New York, Pennsylvania, New Jersey, Maryland, Virginia and West Virginia, is composed of the following:

George H. Pride, chairman; Emlen S. Hare, Thomas F. McCarthy, Joseph K. Orr, George H. Duck, Arthur J. Slade, and Joseph Husson, secretary and executive member and editor of *The Commercial Vehicle*.

This committee has undertaken to form other committees in the States mentioned to carry on the enlistment work in the sections in which they are located and to form local examining boards at which applicants may present themselves. C. A. Musselman of Phila-

delphia is forming a committee in that city to obtain recruits in Philadelphia and in Camden, N. J.

A similar committee has been formed in Boston to obtain recruits in the six New England States which will form the Northeastern Department of the present Department of the East on May 1, 1917. The personnel of that committee is as follows:

Major Harry G. Chase, chairman; Lieut. P. C. Baker, E. J. Sampson, Day Baker, Cornelius Beard, and Captain F. J. Burnham, secretary and executive officer.

Roderick Stephens is now absent on a trip to Atlanta, where he will form similar committees to take hold of the work in what will be the Southeastern Department of the present Department of the East and which will include North Carolina, South Carolina, Georgia, Florida and Alabama.

It is not the intention of the various committees to recruit drivers solely from the ranks of present-day drivers, as that procedure would seriously cripple the present industrial transportation life in the localities from which such men would be taken. It is rather the intention to obtain enlistments from among the ranks of those who own or drive their own cars and from college graduates who could be made into drivers of the highest class after a short period of training.

The truck drivers are enlisted as sergeants instead of privates and are thus able to advance more rapidly than if they entered the service at the lower rank. An enlistment station for the Department of the East has been located at Governor's Island, but will be moved to the United States Rubber Co.'s office at 1790 Broadway, New York City, where application blanks may be secured. Other recruiting stations will be opened in Boston, Philadelphia, Washington, Buffalo, Rochester, Syracuse and various cities throughout the entire present Department of the East.

Applicants for enlistment as truck drivers must be between the ages of 18 and 45. They must be of good antecedents and habits, and be free from bodily defects and diseases. They must be citizens of the United States or have made a legal declaration to become citizens of the United States, and be able to speak, read and write the English language. They must furnish two certificates of good moral character, with particular reference as to sobriety and as to experience, and in addition will be examined by special examining boards.

Enlisted men of the Quartermaster Enlisted Reserve Corps will be required to keep themselves physically fit for military service for a period of 4 years and to attend each year, if ordered to do so, an army encampment for 2 weeks only, for which duty they will be paid. They must also hold themselves in readiness for actual duty at the proper place in time of actual or threatened hostilities in answer to the call of the President of the United States. Men who enlist in this reserve retain their status as

"Business as Usual" Slogan of the Trade

War Is Having Little Effect and Dealers Are Optimistic—Crop Outlook Now Is Better

NEW YORK, May 1.—Dealers all over the country are extremely optimistic concerning the probable effect of war on the motor car trade. Few report that there have been cancellations, though some admit that business which had been practically lined up has not materialized because prospects are apprehensive over possible developments. This, however, is the exception. For the most part dealers report a healthy increase in sales this year for the corresponding period last year and expect that the increase will remain normal.

"Business as usual" has become the slogan of the trade. There have been some reports that automobile credits have tightened a little through the West and Northwest, but these have not been backed up by any real proofs. On the contrary, the banks seem just as anxious for motor car paper as ever before.

In the West crops naturally are the big topic and it was thought that drought might reduce the yield to a considerable extent. Last week, however, heavy rains have materially improved conditions in the wheat country and it is estimated now that crops will be only slightly less than normal after all.

civilians and are only required to leave their homes to attend an encampment in time of war or threatened war.

Truck drivers in the enlisted corps will be recruited as sergeants at the rate of \$36 a month, and will have their railroad fares to and from their homes paid by the government while traveling. They will be supplied with uniforms the same as prescribed for enlisted men of the Quartermaster's Corps of the regular army reserve, except for insignia. In addition to the above 1360 sergeants required as truck drivers, the Quartermaster's Corps, Department of the East, must also recruit the personnel for eighty wagon companies, seventy bakery companies and miscellaneous skilled workmen, bringing the total of the personnel required, including first sergeants, sergeants, cooks, corporals and first-class privates, up to 5233 men.

Searchlights on Tractors

KANSAS CITY, MO., April 26—The Kansas Defense Council plans to equip each of the 4000 tractors in Kansas with searchlights, and will use them for day and night work on Kansas farms.

Sales Hold Up in West Despite Wheat Failure

**Frost Spoiled Big Part of Crop, but
Farmers Are Able to Stand It
—Normal Gains Reported**

OMAHA, NEB., April 28—War is little felt in this territory, although a few dealers say their business is suffering a decrease from last year's records. What is apparently the only real danger here is the almost total loss of the winter wheat crop.

A week ago it was discovered that some fields in the south Platte territory had failed to "green up" with the advent of warm weather. Investigation followed, and showed that in the part of Nebraska south of the Platte River, in northern Kansas and southwest Missouri, all of which is tributary to the Omaha markets, the winter wheat crop was almost entirely frozen out. North of the Platte there is still some slight hope, but re-seeding is urgently advised.

The winter was cold and dry. There was little snow and the precipitation was negligible. Very few fields were mulched, and only those which were covered survived. The loss is a big item.

Even in the face of this fact, Omaha dealers are for the most part optimistic. They say, with few exceptions, that the war scare is too remote from the interior to seriously affect trade, and that the farmers, whose crops have been splendid for several years, are already so well off that when the corn crop begins to show up as it is expected to, they will forget the loss of the wheat crop and proceed with whatever plans they already have in the matter of motor car purchases.

The Studebaker-Wilson Co. and Guy L. Smith, Hudson dealer, both report a normal increase of at least 30 per cent over last year's trade. The McIntyre-Hayward Auto Co., Stearns-Knight, observes no effect of either war or crop situations. The Prince Auto Co., Marlon-Handley, says the city trade is slightly affected by the crop loss, but that there is little war scare. They place the decrease at possibly 15 per cent, which, it is believed, will be made up later on.

The White business is reported as 200 per cent over last year's trade for the period. Trucks are said to be in very active demand, with freight car shortage hampering deliveries. Factory output is said to be short on pleasure cars, and is given as the only reason for a falling off in sales.

The Toozer-Gerspacher Co., handling the Dort, Moon and Pathfinder, reports an increase in business of 100 per cent, and says neither war nor crop failure is worrying the prospect. Willys-Overland, Inc., reports a decrease of 25 per cent, but says this will be made up easily later in the season. J. T. Stewart Motor Co., Mitchell and Pierce-Arrow, says no effect of either war or crop loss is yet apparent, but that this may develop later. For the present it is stated that business is twice that of last year. Murphy-O'Brien Co., Dodge and Paige, says the war is cutting trade 10 per cent and the crop loss

15 per cent, but that the scare will blow over.

Among the accessory dealers the Powell Supply Co. says it is doing a third more business than last year, and that there is no indication of worry in the trade from either source. In fact, it is said, the surplus of stock from points on the eastern and southern borders, where the war scare has made dealers and distributors more conservative, coming to this territory is hailed as a real boon after the shortage experienced during the winter.

The Goodyear Tire & Rubber Co. reports an increase in sales of 100 per cent over last year's business, and the Fisk Rubber Co. says it realized an anticipated remarkable increase in trade.

On the whole, while the war situation and the crop loss are both frankly acknowledged, it appears that little sleep is being lost in Omaha, even though some transient falling off in the trade is indicated.

National Revises Its Twelve

INDIANAPOLIS, April 28—The 12-cylinder model introduced early in 1915 by the National Motor & Vehicle Corp. has been slightly revised. The motor has been increased in bore from 2 3/4 to 2 7/8 in., the stroke remaining 4 1/2. A new intake system with a "hot spot"; a counterweighted crankshaft with larger bearings and a detachable cylinder head are now used. The oiling system has been improved and the ignition unit now is driven by a silent chain. The chassis is identical with that of the previous model and it is fitted with three principal body styles, a 7-passenger touring car, a 4-passenger sport type phaeton and a 4-passenger roadster with cloverleaf seating. The latter will constitute about two-fifths of the 1917 output. All three models will sell for \$2,250.

Lawrie Out of Spacke

INDIANAPOLIS, April 28—Frederick S. Lawrie, sales manager of the Spacke Mch. & Tool Co., has resigned, and hereafter will give his attention to a selling agency which he is operating under his own name at 910 Merchants Bank Bldg., Indianapolis. He is representing the following concerns: Western Auto Mch. Screw Co., Elyria, Ohio; Transue & Williams Steel Forging Co., Alliance, Ohio; Metal Specialty Co., Cincinnati; Spacke Mch. & Tool Co., Indianapolis.

Ross Price Up \$200

DETROIT, April 25—On April 26 the Ross Automobile Co. will increase its price from \$1,575 to \$1,775.

Rauch & Lang Increase \$200

COLUMBUS, OHIO, April 27—The Baker R. & L. Co. will increase the price of the R. & L. electric car \$200 on May 1.

Kent Raises Price \$200

BELLEVEILLE, N. J., April 30—The Kent Motors Corp. advanced its prices April 15, raising them from \$985 to \$1,085.

Predicts Big Increase in Automobile Business

**Gibson Company Advising Trade
of Boom to Come and Getting
Ready—Canada's Example**

INDIANAPOLIS, April 28—The Gibson Co. has addressed a special communication to the trade in which it makes the prediction that the entrance of the United States into the European war is the beginning of the greatest era of prosperity ever enjoyed by the American public. The statement is backed up by actual preparations upon the part of the company to handle what is believed will be the largest volume of business since the formation of the company 19 years ago. The company is speeding up work on a new five-story building costing \$500,000 and the plans of all departments of the firm are being so organized that a vastly greater amount of business can be handled on short notice.

"The United States will spend during the coming year from three to five billions of dollars for war purposes," says the statement. "In addition to that enormous sum, a loan of three billions of dollars will be made to the Allies. Practically all of these vast sums will be spent right here at home. The butcher, the baker, the laborer and capitalist, and in fact all classes of peoples, will share in the circulation of this wonderful amount of wealth.

"More automobiles will be sold than ever before and more accessories of all kinds will be required. If the public enjoys the prosperity which we believe it will, the man in the automobile industry will certainly get his share.

"What we may expect can be determined in a measure by the experience of Canada. Before the outbreak of the war business and financial conditions in Canada were poor. The per capita wealth amounted to \$55. Today business in that country is at high tide and the per capita wealth has reached to \$92, which is considerably greater than that of the United States."

New Abbott Six Model

CLEVELAND, April 28—The Abbott Corp. is bringing out a new model styled 6-60 and equipped with a model 7N Continental motor and Warner transmission. It will be furnished with 5 types of bodies as follows: 7-pass. touring, 4-pass. roadster and 2-pass. speedster, \$1,595; 4-pass. Springfield body, \$2,100; 5-pass. Sedan, \$2,150. The car is equipped with a mahogany cowl, nickel copper instruments, front and rear bumpers and a Moto-Meter as standard equipment.

Wilcox in Reserve Corps

DETROIT, April 28—George D. Wilcox, sales manager of the Commerce Motor Car Co., has been tendered a captaincy in the reserve corps of the quartermaster's department of the United States Army.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Bert Collins, general sales manager of the Parker Rust Proof Co., Detroit, has resigned.

F. E. Henderson, special representative for the Hudson Motor Car Co., has joined the Chalmers Motor Co., in the same capacity.

Horace C. Mills has been elected a director of the Stroh Casting Co., Detroit. He will have charge of the sales department.

H. E. Partridge has resigned as manager of the Ford assembly plant at Buffalo. George B. Tyler is appointed manager in his place. Tyler was formerly manager of the Ford, Sioux City, Iowa.

Harry L. Bill has been appointed works manager of the Chalmers Motor Co., Detroit.

J. D. Palmerlee, formerly Southeastern district manager for the Hudson Motor Car Co., has been made a district representative for the Chalmers Motor Co.

H. W. Bixler has been appointed manager of the foreign department of the Republic Rubber Co. of New York, with offices in the Singer Building. He has been with the Republic company for the past 6 years, entering the company's employ at the factory at Youngstown, Ohio, as assistant sales manager.

V. S. Hibbard has joined the Ross Automobile Co., Detroit, as manager of sales and advertising. He was formerly assistant sales manager of the Regal Motor Car Co.

Milton J. Budlong, who is now vice-president of Gaston, Williams & Wigmore as well as vice-president of the Gaston, Williams & Wigmore Steamship Corp., has been made general manager of the former company. This is a new position created to provide a centralization of authority, rendered necessary by the increase in the commercial business of the company and in the size of its organization.

J. R. Collins has resigned from the Maxwell Motor Car Co., Detroit, to become vice-president and treasurer of a large Eastern concern. He was assistant general auditor.

G. A. Richards has been appointed special representative for the Firestone Tire & Rubber Co.'s sales department in the Detroit territory. He has been with the sales department for 7 years. During the past 3 years he has occupied positions as branch manager at Columbus, Ohio, and Pittsburgh, Pa.

G. U. Radoye, whose resignation from the Hudson Motor Car Co. was recently announced, has been appointed assistant to Frank C. Kipp, manager of the carriage sales department of the Packard Motor Car Co.

J. R. Archibald has been promoted to district sales manager of the Maxwell Motor Car Co. in Winnipeg, and will be the manager of the Alberta and Saskatchewan districts.

Harry A. Fitzjohn has been appointed director of purchases for the Hayes-Ionia Co., of Grand Rapids. He was formerly purchasing agent for the Springfield Body Corp., and resigned to assume his new duties.

Herbert J. Douglas has joined the Standard Parts Co., Cleveland, and will have an important place in its accounting department. Douglas has been with the Sherwin-Williams Co. for fourteen years, latterly as comptroller.

Eddie Pullen, racing driver, has been appointed technical expert of the Pacific Coast Chevrolet factory. He will travel the entire territory supplied by that plant and supervise the service of Chevrolet dealers.

New Interests in Regal

DETROIT, April 30—The Lambert interests in the Regal Motor Car Co. have, in great part, changed hands. John Lambert and Charles Lambert have sold their interests in the company, though Bert Lambert retains an interest and will remain as a director of the company. The Lambert interest has been purchased by St. Paul capitalists who are represented by Frank H. Shaw, now treasurer of the Regal company. Shaw was formerly in the banking business in St. Paul.

F. W. Haines remains as president of the company. H. H. Emmons has resigned as secretary and joined the United States Navy. He is succeeded by M. T. Boden who was formerly the treasurer of the company. Other officials remain as heretofore. The Regal company is now producing 10 to 12 cars daily and with the new working capital expects to attain a capacity of 20 cars per day in the near future.

Kloo Mustered Into Service

CINCINNATI, OHIO, April 26—Charles H. Kloo, Jr., assistant sales manager of the United States Motor Truck Co., has been mustered into the Federal service as a member of the Ohio National Guard.

Motor Securities

	April 28, 1917	Bid	Asked
*Ajax Rubber Co.	68	71	
*J. I. Case T. M. Co. pfd.	84	86	
Chalmers Motor Co. com.	17	23	
*Chandler Motor Car Co.	96	99	
Chevrolet Motor Co.	100	105	
Fisher Body Corp. com.	32	38	
Fisher Body Corp. pfd.	94	96	
Fisk Rubber Co. com.	70	75	
Fisk Rubber Co. 1st pfd.	103	106	
Fisk Rubber Co. 2nd pfd.	92	95	
Firestone Tire & Rubber Co. com.	129	135	
Firestone Tire & Rubber Co. pfd.	106½	108	
*General Motors Co. com.	104	104½	
*General Motors Co. pfd.	88½	89	
*B. F. Goodrich Co. com.	51	51½	
*B. F. Goodrich Co. pfd.	107	109	
Goodyear Tire & Rubber Co. com.	207	211	
Goodyear Tire & Rubber Co. pfd.	106½	108½	
Grant Motor Car Corp.	5	8	
Hupp Motor Car Corp. com.	3½	4½	
Hupp Motor Car Corp. pfd.	74	80	
International Motor Co. com.	16	16	
International Motor Co. 1st pfd.	70	70	
International Motor Co. 2d pfd.	30	30	
*Kelly-Springfield Tire Co. com.	53	56½	
*Kelly-Springfield Tire Co. 1st pfd.	88	94	
*Lee Rubber & Tire Corp.	19½	20½	
*Maxwell Motor Co., Inc. com.	48½	49½	
*Maxwell Motor Co., Inc., 1st pfd.	62	66	
*Maxwell Motor Co., Inc., 2d pfd.	31	31½	
Miller Rubber Co. com.	200	210	
Miller Rubber Co. pfd.	104½	106	
Packard Motor Car Co. com.	160	160	
Packard Motor Car Co. pfd.	102	102	
Paige-Detroit Motor Car Co.	32	33	
Peerless Truck & Motor Corp.	12	15	
Portage Rubber Co. com.	141	147	
Regal Motor Car Co. pfd.	25	25	
*Reo Motor Car Co.	30½	31	
*Saxon Motor Car Corp.	50	50½	
Springfield Body Corp. com.	60	70	
Springfield Body Corp. pfd.	110	120	
Standard Motor Construction Co.	13	13½	
Standard Parts Company.	88	90	
*Stewart-Warner Speed, Corp.	74	75	
*Studebaker Corp. com.	85½	86	
*Studebaker Corp. pfd.	104½	107	
Swinehart Tire & Rubber Co.	70	78	
United Motors Corp.	32½	32½	
*U. S. Rubber Co. com.	57½	58½	
*U. S. Rubber Co. pfd.	106½	108	
*White Motor Co.	46	47	
*Willys-Overland Co. com.	30	30½	
*Willys-Overland Co. pfd.	95½	96	

*At close April 28, 1917. Listed N. Y. Stock Exchange. +Par value \$10.

Kentucky License Law Is Sustained by Court

Appellate Tribunal Says Any Excess Above Expense of Licensing May Legally Be Collected

FRANKFORT, KY., April 27—The Kentucky automobile license law is constitutional, the Court of Appeals said today in an opinion by Judge Hurt, affirming the Boyle Circuit Court in the case of G. Murray Smith, who refused to register his automobile and secure a state license for the purpose of testing the law. He was found guilty and fined and appealed the case. He alleged that the administration of the automobile law costs less than \$1, but the license tax is much greater, and that, with the ad valorem tax on the machine, constitutes double taxation.

The court, however, held that under the police powers of the state it may charge a license, not only sufficient to pay the expenses of administering the police regulation, but "to exact a license tax in excess of the cost of regulation and supervision, where the subject is one within the police powers, and apply the excess to remedying the extraordinary and baleful effects of the exercise of the taxed privilege."

Standard Bearing to Expand

PHILADELPHIA, April 30—The entry of the Standard Roller Bearing Co. into the manufacturing field on a larger scale of production with increased facilities and financial aid has been assured by the investment of approximately \$500,000 by the Marlin Arms Corp., which recently bought the S. R. B. property. The company is now in a position to proceed with its plans, as the receivers have been removed and the creditors have all been paid. Though the Marlin company owns the stock of the company, it will be operated under its old name.

A new plant is under consideration, the location of which has not been decided upon. F. M. Germaine, who has been prominent in the activities of the company, remains as general manager. The organization remains approximately the same.

Willmar Garageman Dead

MINNEAPOLIS, April 30—Samuel Osmundson, for the past 16 years a prominent garageman in Willmar, Minn., died on Saturday, April 14, after an illness of two months. He is credited with having brought the first motor car to Willmar.

More Room for Atwater Kent

PHILADELPHIA, April 28—The Atwater Kent Mfg. Co. has awarded a contract for the erection of a two-story building at Logan and Stenton Avenues. The building will measure 14 x 217 feet, and will cost \$75,000.

Smith Form-a-Tractor to Fit Fords to Farm

Controlled by Smith Form-a-Truck
Interests—Will Pull Two Plows
2½ Miles an Hour

CHICAGO, April 30—The Smith Form-a-Tractor Co. was recently organized in Chicago by practically the same interests as now control the Smith Motor Truck Corp., and will place on the market an attachment for converting the standard Ford touring car into a farm tractor. The attachment will sell for \$255, and it is stated that any Ford can be made a tractor in 15 min. without the necessity for any machine work.

The attachment consists of a channel section frame which attaches to the Ford front axle, extends under the Ford chassis beyond the rear axle and is connected with a dead tractor axle made of 2-in. cold rolled steel, which is designed to receive two tractor wheels. The work of transformation is completed by removing the Ford rear wheels and replacing them with driving pinions designed with a keyway to fit into the key of the Ford axle, the driving pinions fitting over the brake drums and brake bands and retaining all the braking features of the Ford car.

The tractor wheels, which are 10 in. wide, are designed with a bull gear made in 8 sections. The teeth of this gear mesh into the roller driving pinions on the Ford rear axle, giving a big gear reduction. There are 6 rollers on the driving pinion and 64 teeth in the bull gear. An 11 to 1 gear reduction is effected. Each wheel is fitted with 27 conical lugs arranged in rows of 3, which are staggered on the tractor wheels. These are easily removable for hard work.

Inasmuch as the tractor axle is back of the Ford rear axle the tractor wheels are pushed down, affording a down thrust, which gives maximum traction with no waste power and no strain on the Ford engine.

The side members of the frame, which are made of heavy channel section, are bent inward at a point a trifle beyond the muffler of the Ford car, converging at the front axle, to which they are attached by means of a bracket.

By means of this construction all the strain is taken off the Ford frame. There is no vibration transmitted to the Ford chassis nor is the Ford subject to any strain in operating on hilly or rough ground or when either wheel runs in a furrow.

Two push rods extend from the tractor axle to the housing of the Ford rear axle so the car is pushed ahead by the tractor attachment.

A special cellular type radiator containing six times the cooling area of the Ford radiator is furnished with the Smith Form-a-Tractor. This is necessary, due to the fact that when used as a tractor the speed rarely exceeds 2 to 2½ miles an hour while the engine is operating approximately 1000 r.p.m., or a speed sufficiently high to propel the Ford car 20 to 25 miles per hour.

A Strong sight feed oiling system with sight on dash is also provided. Both this oiling system and the radiator remain on the car at all times. No portion of the frame, however, remains on the Ford car when the tractor attachment is disconnected.

It is stated that tests made with the Smith Form-a-Tractor show that it will pull two 14-in. plow bottoms at 2½ miles an hour with the plow set 7 in. deep.

Hudson Buys Out Its St. Louis Dealer

ST. LOUIS, April 30—John F. Phillips has sold his interest in the Hudson-Phillips Motor Car Co. to the Hudson factory. He will retain the recently acquired agency for the Harroun car and establish a new salesroom. Phillips took the agency for the Hudson car in 1906 when only 20 of these cars had been sold here. He leaves it when more than 2000 cars have been sold. Prior to coming to this city, Phillips was in the motor car business in Chicago for 7 years.

Battery Ignition on 85 Per Cent of Cars

Rice Gives His Opinion of Battery
and Magneto Equipment—
Standardization Needed

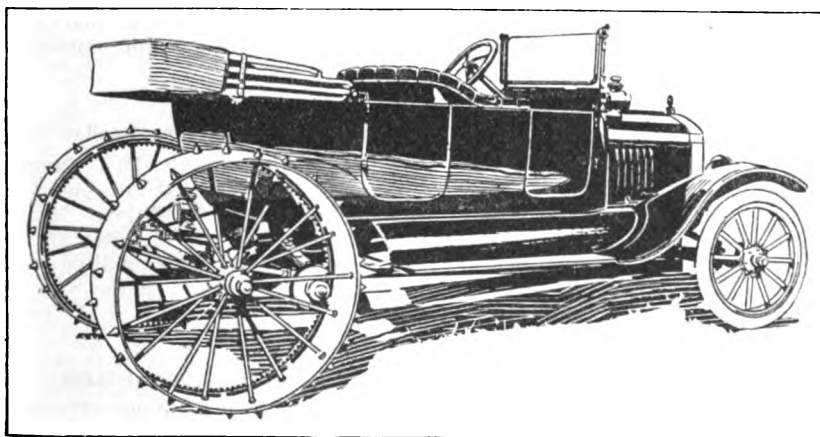
PHILADELPHIA, April 26—Of a total of 108 manufacturers of automobiles, 86 are to-day using battery ignition systems and 22 are using magnetos, many of the latter using dual systems which are virtually semi-battery ignition systems.

In making this statement before the Philadelphia Section of the Society of Automotive Engineers, H. E. Rice, sales manager of the Atwater Kent Mfg. Co., also laid stress on the need for standardization in certain parts of such equipment, which he stated is the least complicated and the easiest to maintain of all ignition systems. Rice's paper was entitled "Problems in Ignition Development."

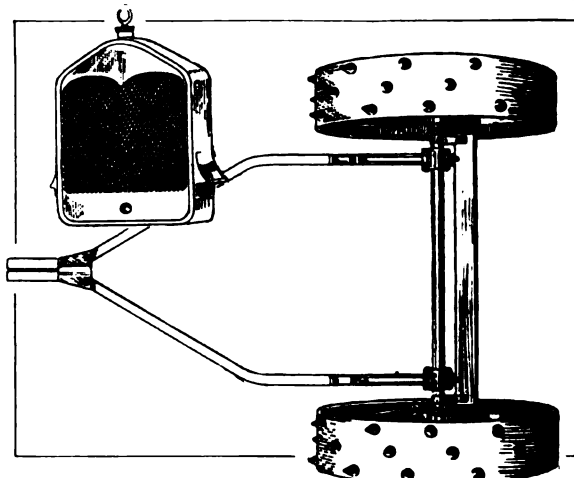
In reviewing the development of ignition apparatus, Rice pointed out that ignition equipment represents only about 1 per cent of the total cost of the complete car, but is 100 per cent important to the operation of the car.

"Battery ignition," he said, "may be divided into two general types and classified as open circuit and closed circuit systems. In each system the elements are almost identical, consisting of a combination, low-tension circuit breaking and timing device, a transformer coil with primary and secondary windings, and a distributing device for connecting each spark plug in its proper order to the high tension winding of the coil.

"The open circuit contact maker is so designed as to close the circuit of the transformer coil momentarily for each spark, the time interval being uniform at all motor speeds. The time during which the primary current flows through the coil is approximately .033 of a second for each spark. The current flow for this brief instant is about 4½ amp. but the time is so short that the energy



The new Smith Form-a-Tractor converts a Ford into a tractor in 15 minutes without machine work



Here are the parts of the Smith Form-a-Tractor—the wheels, frame and the extra large radiator

consumed is almost negligible—a 6-cylinder system requires less than .6 amp. at highest motor speed and dry cells are economically used for current.

"In the closed circuit system the same elements are used except that the contact maker is operated by direct cam action and the electrical windings are proportioned differently. The form of the contact maker has been evolved from the magneto and consists of a simple arm carrying a contact point and controlled by a spring to bring the contact together. The contacts are separated by the action of the cam on the timer shaft.

"By reason of this simple cam action, the circuit is closed for a longer time interval than with the open circuit system and the contact varies with the speed—a long contact at low speed becoming shorter as the speed increases.

"This is a much simpler type of contact maker than required by the open circuit system, but it takes more current, and should the circuit be left open with the motor closed, the battery will be discharged at a rate limited only by the resistance of the primary circuit.

"The current characteristics of the closed circuit system are the reverse of the open circuit system. The former takes a maximum current when the motor is not running, falling as the motor starts and reducing with speed. In the open circuit system, current consumption is zero at zero speed and increases in direct proportion to the speed. While the open circuit system is widely and successfully used, the closed circuit system undoubtedly is simpler in construction and its manufacturing cost is considerably lower. It is therefore in wider use than any other type."

Asks Bids on Duplex Plant

LANSING, MICH., April 28—The Duplex Truck Co. has advertised for bids for the construction of its new factory building in this city on the 15 acres bought last fall. The proposed building will be 72 ft. x 600 ft., two stories, fireproof and will be brick, cement and steel. It is possible that the company may move none of the Charlotte equipment to Lansing, as the Charlotte shops may have to be used as auxiliaries to meet the sales department demands. The capacity of the shops to be built this spring is but ten complete trucks a day. Under the company's present plans, provisions will be made, when the additional shop building is put up, to make all parts here except the motors.

28,000 Chandler Shipments a Year

CLEVELAND, April 26—The Chandler Motor Car Co. is shipping cars at the rate of over 28,000 a year. During the week of April 14, the company made a record shipment of 618 cars. In the first 2 weeks of April a total of 1173 cars were shipped, which indicates over 2400 for the month, 82 per cent ahead of a year ago. Last year, total shipments were 13,073 cars.

Everyone in Pittsburgh to Have May-day Moving

Not Quite Everyone, of Course, but Many Dealers Are Going into New Homes This Week

PITTSBURGH, April 28—May 1 will be moving day for a great number of Pittsburgh automobile and accessory dealers. Many others who had intended to move May 1 will be delayed because new buildings are unfinished. These, however, will get located within the next week or so:

McAllister Bros. will move into their new Cadillac sales and service building on Baum Boulevard, about two squares from their present location.

The National Pittsburgh Automobile Co. has rented the building vacated by McAllister Bros.

The Pittsburgh Paige Co. will take possession of a new sales and service building at Baum Boulevard near Craig Street.

The Eddie Bald Motor Car Co., Hudson dealer, will occupy a new home on Baum Boulevard near Negley Avenue.

The G. T. Overholt Co., Premier, Stearns-Knight and Dort dealer, has arranged to move into the building vacated by Eddie Bald.

The Martin-Whitehill Co., Republic truck dealer, will be in a new sales and service building on Center Avenue, shortly after May 1.

The Lawrence Motor Truck Co. is building a complete sales and service building on Baum Boulevard near Negley Avenue, which it expects to occupy soon.

The Jackson Motor Supply Co. has erected a new structure at Baum Boulevard and Negley Avenue, which it will move into on May 1.

The Pittsburgh Motor Sales Co., dealer in Marion-Handley and Elcar, will occupy one-half of the building on Penn Avenue being vacated by the Jackson Motor Supply Co. The other half of this building has been rented by the J. & J. Automobile Co., selling the Abbott-Detroit.

The Motor Supply Co. has moved into a new building opposite the Ford branch at Baum Boulevard and Morewood Avenue.

The Valford Sales Co., Ford dealer, will move on May 1 to a new building at Broad Street and Collins Avenue.

The Point Motor Sales Co. has taken possession of new sales and service headquarters in the new Pittsburgh Chamber of Commerce Building.

The Pittsburgh-Racine Rubber Co. opened a branch store at 109 South Highland Avenue.

The Oldsmobile Co. of Pittsburgh has broken ground for a new building on Center Avenue. This, however, will not be finished for several weeks.

The Pittsburgh Apperson Co. expects to occupy new salesrooms on Baum Boulevard about May 1.

The Fisk Rubber Co.'s Pittsburgh branch will remove about May 1 to a new sales and service station at Baum Boulevard near Craig Street.

Standard Parts Earnings High

CLEVELAND, April 27—Earnings of the Standard Parts Co. during March were at an annual rate of more than 25 per cent on the common stock, which is

larger than the rate in any of three preceding months. The company yesterday closed a contract to furnish a leading automobile maker with 150,000 sets of springs.

50,000 Republic Trucks in 1918

ALMA, MICH., April 24—The Republic Motor Truck Co. is making extensions and improvements to enable the company to build 50,000 motor trucks in 1918. The company built 7000 trucks in 1916 and is turning out 23,000 this year.

Pressed Steel from Fostoria

FOSTORIA, OHIO, April 27—The Fostoria Pressed Steel Co. has been incorporated for \$100,000 by W. C. Allen, C. D. Pifer, and Henry Rothcock. The company will supply all of the steel work for the building of the Allen automobile and for steel needed by the Dale Body Co., which manufactures the bodies for the Allen motor car.

Boone Tire Starts Building

EAU CLAIRE, WIS., April 28—The Boone Tire & Rubber Co., Sycamore, Ill., and Des Moines, Iowa, has awarded contracts and will start work May 1 on the erection of a third complete factory group, to be located at Eau Claire, Wis. The first unit will be a one-story and basement structure, fireproof, 60 x 180. The structure will cost \$20,000 and the equipment about \$50,000. Ultimately the Eau Claire group will consist of four buildings of the same size, forming a hollow square. It is hoped to start actual manufacturing operations by August 1.

All Season Directors Resign

MARSHALL, MICH., April 24—W. L. Page, E. E. Page and W. J. Dibble, directors of the All Season Body Co., have resigned. W. L. Page was the president of the company. The stock owned by these retiring directors was returned to the company and they have no further interest in it. Stockholders decided to defer the election of successors until a later date.

Cincinnati Revises Races

CINCINNATI, April 29—The Cincinnati Speedway officials have substituted three opening races instead of the amateur event scheduled for May 30. There will be a special race for Fords at 20 miles with three cups, valued at \$100, \$75 and \$50, as prizes. A stock chassis 20-mile race is scheduled with cups as prizes, valued at \$150, \$75 and \$50. There will also be a special invitation race of 30 miles, for Class-E non-stock cars. The prizes will be three cups, valued at \$200, \$100 and \$75. These races will precede the 250-mile event.

Premier Price Put Up \$90

INDIANAPOLIS, April 27—The price of the Premier roadster and touring car has been raised \$90, from \$1,895 to \$1,985.

"Tiffany in Tires" Is Idea Back of Gryphon

New Tire Will Cater Only to Wealthy Trade—Will Have Appropriate Adjustment Policy

NEW YORK, May 1—"Tiffany in tires" is the merchandising idea back of the new Gryphon tire, which is just entering the market and has opened its first agency this week, in this city. The distributor in the metropolitan section is Robert Graves, Jr., who has opened up at 1665 Broadway.

Other distributing agencies will be established in the principal cities and in suburbs and small towns where there is a wealthy population. The tire, which is hand made, is somewhat higher in price than the average tire and distributors will cater only to the high-class trade. It will also be sold by the Automobile Club of America.

The adjustment arrangement is flexible. With the class of trade the company plans to get, the word of the owner will be accepted as a general rule, it being maintained that the more wealthy class of owners will represent conditions fairly and not haggle or stretch the truth for what might be gained in an adjustment.

A 34 x 4½, which in one popular make sells for \$34.50, will, in the Gryphon, sell for \$40.55. The tire is to be standard equipment on the Rolls-Royce and Owen Magnetic.

An interesting phase of the company's beginning is that it has applications from 1000 more tire makers than it can use. These men draw good wages and seem anxious to locate in New York city and give their families the benefits of metropolitan life. Most of the applicants live in New Jersey, which has many tire factories. The factory is in the Fordham section, near the upper end of Manhattan Island. It has just been completed and equipped and production will begin at once.

The Gryphon Rubber & Tire Corp. is headed by Joseph W. Jones, who brought out the Jones speedometer.

Briscoe Output Increases

JACKSON, MICH., April 27—The Briscoe Motor Car Corp. is increasing its manufacturing schedule for the spring and summer by 5000 cars and will also turn out 2000 Redden truck-makers monthly for the next four months.

Pierce-Arrow Elects Officers

BUFFALO, N. Y., April 27—The following officers were elected at the annual meeting of the board of directors of the Pierce-Arrow Motor Car Co.: President, Col. Charles J. Clifton; vice-president, Henry May; second vice-president, W. J. Foss; secretary, L. H. Gardner; and treasurer, W. C. Wrye. This list of officials maintains the present personnel except for the election of W. J. Foss as second vice-president. Foss was ap-

pointed commercial manager of the company in October, 1915. A few months later he was elected to the board of directors. He will continue to have full charge of all the company's selling activities.

Kerston To Make Gas-Electric

SOUTH BEND, IND., April 28—Harry Kerston has resigned from the Studebaker Corp. as designing engineer. He is associated with a company to make the Kerston Gas-Electric car.

Maker of \$12,000 Car May Make Truck

OAKLAND, CAL., April 30—The Fageol Motors Co. will establish a motor truck factory in Oakland, and the company will produce a new type of truck. The first allotment will be for 150 trucks, ranging in size from 2 to 5 tons, and it is expected that deliveries will begin July 1. The first unit of the factory will be 50 x 250, concrete and steel. The Fageol company became prominent several months ago through the announcement of the highest priced pleasure car chassis—a design fitted with a Hall-Scott aviation motor. Later the company withdrew from the pleasure vehicle field temporarily to permit government use of the entire Hall-Scott production.

Guarantee Securities Changes

NEW YORK, April 30—E. S. Maddock has been elected first vice-president of the Guarantee Securities Corp., being advanced from the second vice-presidency. Paul Fitzpatrick has been made second vice-president, and J. Alexander, who has been secretary, has been elected treasurer and will serve in both offices. John B. Swinney has been added to the list of officers as assistant secretary. The company recently declared a dividend of 2 per cent.

New Gramm-Bernstein Distributer

NEW YORK, April 30—The Gramm-Bernstein Sales Corp. has been formed to take over the distribution of Gramm-Bernstein motor trucks in New York and New England. The contract between the R. E. Taylor Corp., which formerly handled this work, and the Gramm-Bernstein Motor Truck Co., Lima, O., has been cancelled. The new organization will be under the direction of C. W. Moody, with headquarters at 1457 Broadway. Practically all of the Taylor salesmen and servicemen will remain with the new organization.

Start Revere Buildings

LOGANSPOUT, IND., May 1—Work was started yesterday on the construction of the buildings for the Revere Motor Car Co., which will assemble the Revere car, using a Duesenberg engine. The buildings will have a floor space of 33,000 sq. ft. and the plant will have a capacity of 2500 cars yearly.

New York Plans Double War Tax on Motor Cars

Measure Now in the Mill Would Bring in \$2,000,000, in Addition to Pleasure Car Taxes

NEW YORK, April 30—The Legislature of the State of New York proposes to double registration fees on pleasure vehicles as a war measure. The proposal to increase such taxation is included in Senate Bill No. 2,047, which was introduced April 25 by the Committee on Taxation and Retrenchment, was read twice, and by unanimous consent was ordered to a third reading. It is expected that if this measure should pass it would bring into the treasury of the State about \$2,000,000 in addition to the taxes already placed on pleasure cars. The measure would become effective immediately, and on all cars purchased on and after August 1, 1917, and up to and including July 31, 1918, the purchasers would be compelled to pay twice as much for license plates as they must pay at present. The bill follows:

AN ACT

In relation to fees for motor vehicle registration and number plates during the year beginning August first, nineteen hundred and seventeen.

Section 1. Notwithstanding any provision of article eleven of the highway law, the fees to be paid for registrations made between and including the first day of August, nineteen hundred and seventeen, and the thirty-first day of July, nineteen hundred and eighteen, of motor vehicles, other than omnibuses and auto trucks under the provisions of section two hundred and eighty-two of such law, and for the registration of manufacturers of and dealers in motor vehicles under the provisions of section two hundred and eighty-four of such law as now in force or as amended to take effect February first, nineteen hundred and eighteen, and for number plates or sets of number plates issued under any provision of article eleven of such law between and including August first, nineteen hundred and seventeen, and July thirty-first, nineteen hundred and eighteen, except the additional number plates for omnibuses expressly referred to in subdivision six-a of section two hundred and eighty-two of such law, shall be twice the amount of the fees which would be payable under the provisions of such law at the time the registration is made or number plates issued if this act had not been passed.

Sec. 2. This act shall take effect immediately.

Hackett Plans Grand Rapids Location

GRAND RAPIDS, April 28—The Hackett Motor Car Co. will soon decide upon a location in Grand Rapids for its new plant. Blueprints and complete specifications for the Hackett factory are ready and construction will be started as soon as a satisfactory site is located. A recent auditing of the Hackett company's books shows an increase in assets of \$43,000 since last August, making a total more than \$300,000.

New St. Louis President Takes Whack at Used Car

Names Used Car Committee and Sees Light Through the Gloom of Trying Problem

ST. LOUIS, April 28—President Joseph A. Schlecht of the Automobile Manufacturers' and Dealers' Association of St. Louis has begun his administration by launching an effort to solve the used car problem. In taking up this work, President Schlecht says that he has found encouragement in Motor World Used Car Price Record, which he thinks will revive interest in this troublesome question and can be used as a means toward clearing the situation. I. G. McNiece, manager of the Cadillac Automobile Co. of St. Louis, is chairman of the committee.

President Schlecht has other innovations. One of these was announced at the first meeting of the Board of Directors last Thursday, when he named each director as the head of a standing committee and suggested to the directors names for the membership of this committee. No director will serve on more than one such committee. Heretofore it has been the plan to make up the committees chiefly from the directorate. It is President Schlecht's plan to recruit as many workers on the committee as possible. Several of the older members have been asked to be left off the committees and practically all of the other members will be put to work. The chairmanships announced were:

Show, H. W. Spalding, Packard-Missouri Motor Car Co.

Used Cars, I. G. McNiece, Cadillac Automobile Co. of St. Louis.

Legislative, W. L. Johnson, Johnson Automobile Co.

Detail and Advisory, F. W. A. Vesper, Vesper-Buick Auto Co.

Entertainment, J. D. Perry Lewis, Lewis Automobile Co.

Membership, Frank R. Tate, Tate-Gilham Motor Car Co.

Races and Contests, Herman L. Schnure, Velie Automobile Co. of St. Louis.

Robert E. Lee was re-elected secretary and was made assistant treasurer. This will make Lee's seventh year as secretary of the association, consecutive except for one year. He has been manager of the automobile show which has been given by the association for the same number of years. He also is secretary of the Motor Accessory Trade Association of St. Louis and is serving his seventh year in that capacity.

Universal Separates Departments

CHICAGO, April 30—The manufacture and sale of Baker demountable rims and Stone shock absorbers which heretofore have been handled by the Universal Rim Co. are hereafter to be separate and all matters pertaining to patent royalties and the licensing of fac-

tories to manufacture Baker rims will be handled by the Universal Rim Co. The wholesaling and manufacturing will be handled by the Stone-Thompson Mfg. Co., which takes over the entire distribution of Baker rim and Stone shock absorbers, as well as other specialties now under development. The management of the Stone-Thompson company is the same as the former wholesale department of the Universal Rim Co. Stone is the inventor of the Stone shock absorber and has been associated with the rim company for several years. P. C. Thompson was formerly treasurer and sales manager of the rim company, and has been with that company since its inception.

Republic To Triple Output

YOUNGSTOWN, OHIO, April 27—The Republic Rubber Co. is contemplating building additions to its plant. Engineers have been engaged on plans for the additional buildings for some time. Some of the buildings will probably be erected on the 40-acre tract which the company owns. It is proposed to at least triple the present capacity of 3000 tires a day. Extensions will also be made to increase the output of mechanical rubber goods.

Crowther Factory on Block

ROCHESTER, N. Y., April 27—The factory of the Crowther Motors Corp. was offered for sale last Wednesday. No bid for less than \$35,000 was considered. Several attachments have been filed against this property. The receivership was made by Judge Hazel following suit.

Be Saw Tire Expanding

CANTON, OHIO, April 27—The Be Saw Tire and Rubber Co. is planning an increase in its tire output from 150 to 500 tires a day. The capital is to be increased from \$220,000 to \$1,000,000. New buildings are being planned and work will be started on them in the near future. About 200 additional men will be needed in the plant.

Steckels Out of Holt-Welles

NEW YORK, May 1—E. H. Steckels, president of the Holt-Welles Co., Inc., sole distributor for the Branford carburetor, has resigned and sold out his interests to the Malleable Iron Fittings Co., Branford, Conn., manufacturer of the Branford carburetor, to enter business as a manufacturers' distributor with offices in the U. S. Rubber Building.

More Room for Wisconsin

MILWAUKEE, WIS., April 28—Ground was broken to-day by the Wisconsin Motor Mfg. Co. for a machine and assembling shop addition, 115 x 275 feet. The concern recently increased its capital stock from \$350,000 to \$1,000,000 to provide for the extensions and the growth of the business. The new facilities will be available about July 1, it is expected.

5% Tax on Incomes Is Opposed by Factories

Representatives of Motor Car Industry Against Such a Measure—Could Not Be "Passed Along"

WASHINGTON, May 2—Special Telegram—Although the government has done nothing yet with regard to placing a tax on motor cars as a war measure, speculation is rife as to what will be done. It is generally accepted that the Ways and Means Committee will decide upon a tax of 5 per cent to be levied on the gross income of motor car factories. It is not believed, however, that the full committee or that Congress itself will permit the motor car industry, which is doing and which will do so much to aid in the prosecution of the war, to be singled out for taxation in excess of that assessed against other industries.

Already a storm of opposition has arisen against such a proposed measure. Roy Chapin of the Hudson Motor Car Co., Alvin Macauley of the Packard Motor Car Co., and other representatives of factories and dealers are here vigorously opposing such a measure.

It is contended by Chairman Kitchin of the Ways and Means Committee that the manufacturers could pass such a tax along to the purchasers. This, however, is denied by factory representatives, who state that the sale price of cars is fixed each fall and that it would be impossible to pass along such a tax.

Factory representatives seem in favor of the suggestion of Secretary McAdoo that a graded tax be assessed against cars in the hands of individual owners, the tax to be based on the cost of the car.

It has also been suggested that an excess profits tax of from 8 to 16 per cent be levied against the various manufacturers, and factory representatives are up in arms against this, too, because if such a measure were passed, the automobile industry would be the only one, with the exception of one other, to be saddled with the burden of such a tax.

Diamond to Reorganize Sales

CHICAGO, April 30—The Diamond T Motor Car Co. has moved into its newly finished factory building at West Twenty-sixth Street and Kilbourne Avenue. The sales force has been entirely reorganized, with F. J. Pardee at its head. J. S. Conroy has been appointed district sales manager. J. P. Burris, who recently resigned from the Packard Motor Car Co., will have charge of all national business for the Diamond T Co. R. E. Breeden is special territorial man, and will have charge of the appointment of dealers and distributors. The first unit of the new plant covers about 125 sq. ft. of the 10 acres controlled by the company. The capital stock of the company has been increased to \$500,000.

Revisions Are
Made in Table
Every Week

MOTOR WORLD GUIDE

Specifications
of the
Leading Cars

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT 6-44	6-31x44 25.3 Remy			Stumg	Remy	DP 3 122 32x4	SS				1195	11250	1195	1495	1820		
ALLEN Classic	4-31x5 22.5 Weths			Stumg	Weths	C 3 112 32x3	SS				1895	895		1175	1195		1195
AMERICAN-SIX	6-3 25 21.6 G & D			Zenith	G & D	D 3 122 32x4	SS					1285					
AMS-STERLING 17	4-31x44 15.6 Bosch			Stumg	Bosch	DP 3 110 30x3	SS										
ANDERSON	6-31x44 25.4 Weths			Own	Weths	DP 3 120 33x4	SS				1275	1250	*1250				
APPLETON	6-31x5 29.4 Remy			Rafid	Bijur	DP 3 130 34x4	SS				1750	1690	1750				
AUBURN 8-17	8-31x5 31.2 Remy			Johnson	Bijur	DP 3 130 35x4	SS				2000		2000				
AUBURN 6-39	6-31x5 23.4 Remy			Rafid	Remy	DP 3 120 34x4	SS				1145	1145	1145				
AUSTIN 6-44	6-31x5 29.4 Delco			Rafid	Delco	DP 3 131 35x4	SS				1153	1535					
AUSTIN 12-21x5	12-21x5 39.6 Delco			Stumg	Delco	D 6 142 34x4	QD				3750	3750	4000	4550	4950	5250	
BIDDLE 17	4-31x5 22.5 Dixie			Zenith	G & D	DP 4 122 32x4	QD				2200	2350	2275				3900
BOUR-DAVIS 17	6-31x44 25.3 Remy			Stumg	G & D	DP 3 118 32x4	QD					1250					
BREWSTER	4-4 25 25.6 Bosch			Zenith	U.S.L.	C 3 125 34x4	SS				16500				7500	7700	
BRISCOE 8-24	4-31x5 16.3 Conn			Mayer	Splitdorf	C 3 105 30x3	QD				725	725					850
BUICK 4-38	8-31x3 28.8 Remy			Zenith	Apico	C 3 114 32x3	QD				11045	1045					
BUICK 4-38	4-31x5 18.9 Remy			Mayer	Apico	C 3 114 32x3	QD				1845	845					
BUICK D-434-35	4-31x44 18.2 Delco			Marvel	Delco	C 3 106 31x4	C				660	675					
6-44-47	6-31x44 25.3 Delco			Marvel	Delco	C 3 115 34x4	SS				1040	1070		11440	1835		
E-49	6-31x44 27.3 Delco			Marvel	Delco	DD 3 124 34x4	SS						1385				
CADILLAC 55	8-31x5 31.2 Delco			Own	Delco	D 3 122 37x5	SS				12240		2240	2960	3110	3760	2835
CASE 17	4-31x6 21.0 Conn			Rafid	A-Lite	C 3 120 34x4	QD				11190		1190				
CHALLMERS 6-50	6-31x44 25.4 Remy			Stumg	Weths	DP 3 115 32x4	SS				1250	1250	1350	1625	1850	2550	
CHANDLER 17	6-31x5 27.3 Bosch			Rafid	G & D	D 3 122 34x4	SS				11395		1395	1995	1995	1995	
CHEVROLET 4-50	4-31x44 21.7 Conn			Zenith	A-Lite	C 3 102 30x3	C				535	550					625
ES-P2	4-31x44 21.7 Conn			Zenith	A-Lite	C 3 108 32x3	SS				800	800					
COLE 6-45	6-31x4 36.45 Conn			Zenith	A-Lite	C 3 120 34x4	SS				1385	1385	11385				
CROW-FLKHAUT	8-31x44 39.2 Delco			Stumg	Delco	C 3 127 35x4	SS				11795		1795	2295			
CS-33-35	4-31x5 19.6 Conn			Carter	Dyneto	D 3 114 32x3	SS				1895	845					985
DANIELS 8	8-31x5 33.8 Weths			Zenith	Weths	D 3 127 34x4	QDR				12800	2800	2800	3800	4000		
DAVIS H & I	6-31x44 25.3 Delco			Stumg	Delco	C 3 119 34x4					1295	1295	1295	1695	1795		1995
DETROITER 6-45	6-31x5 29.4 Delco			Stumg	Delco	C 3 124 34x4						1595	1595				
DISPATCH 13	6-31x44 25.3 Conn			Ball	A-Lite	D 3 119 33x4	SS				11250	1250		125			1550
DIXIE FLYER 13	6-31x5 22.5 Bosch			Rafid	U.S.L.	D 4 120 36x3	QD				1135		1210	1400			
DOBLE 13	4-31x5 16.9 Conn			Carter	Dyneto	C 3 112 32x3	SS				845				1275		
DODGE BROTHERS 13	2-15x4 double-acting steam engine. Boiler pressure 600-lb.																
DODGE 13	4-31x44 24 Delco			Stewart	N.E.	D 3 114 32x3	8				835	835		1265	1265		1000
DORRIS 13	6-4 25 28.4 Bosch			Stumg	Weths	D 8 108 36x4	SS						2475	3240	3340	3475	
DORRIS 13	4-31x5 16.9 Oona			Carter	Weths	C 3 105 30x3	QDC				1775	775			1065		845

PAIGE	6-3125	22.4	Remy	Radd	G & D	D	3 117	32x4	SS	1176	1176	1496	2100	2760	3760	
6-46	6-3125	20.4	Remy	Radd	G & D	D	3 137	35x4	SS	1106	1106	1496	2100	2760	3760	
PARTIN-PALMER	20	4-3125	15.6	Conn	Schebler	A-C	DD 3	96	30x4	C	545	545	696	1196	1796	
32	4-3125	19.6	Conn	Cartier	Dioco	DD 3	110	32x4	C	1196	1196	1496	2100	2760	3760	
PATERSON	6-3125	25.4	Delco	Stumb	Delco	C	3 117	32x4	C	1196	1196	1496	2100	2760	3760	
PATFINDER	3-A, B, C	12-2125	39.7	Delco	Stumb	Delco	DD 3	135	35x5	SS	3260	3260	3260	3260	3260	
PERLESS	56-2	8-3125	33.8	A-Kent	Special	A-Lite	DD 3	125	35x4	SS	12000	12000	2000	2760	2890	
PIERCE-ARROW	38-C-4	6-4 25	38.4	Boech	Own	Watha	C	4 124	36x4	QDC	4800	4800	4800	4800	4800	
48-B-4	6-4125	48.6	Boech	Own	Watha	C	4 142	37x5	QDC	5400	5400	5400	5400	5400	5400	
66-A-4	6-5 27	60	Boech	Own	Watha	C	4 147	38x5	QDC	6400	6400	6400	6400	6400	6400	
PILOT	6-45	6-3125	23.4	Delco	Tilman	Delco	DP 3	119	32x4	SS	11200	11200	1200	1200	1200	
PREMIER	6-B	6-3125	27.3	Delco	Johnson	Delco	DP 3	125	35x4	SS	11985	11985	1985	2000	3150	
PRINCESS	4-36	4-3125	22.5	Spittford	Schebler	Dioco	D	3 108	32x4	SS	825	825	825	825	825	
PULLMAN	42-42	4-3125	22.5	A-Kent	Stumb	Dyneto	D	3 114	31x4	C	910	910	860	1860	1860	
REGAL	4-32	4-3125	19.6	A-Kent	Cartier	A-Lite	C	3 108	30x4	DC	1200	1200	745	745	745	
REPUBLIC	6-4125	43.3	Delco	Radd	Delco	C	4 133	36x4	SS	12960	12960	2960	2960	2960	2960	
REO	6-3125	30.4	Remy	Radd	Remy	DD 3	126	34x4	SS	11250	11250	1250	1750	1750	1750	
R	4-4125	27.2	Remy	Johnson	Remy	DD 3	115	34x4	SS	3576	3576	876	876	876	876	
ROAMER	6-3125	23.4	Boech	Stumb	Bijur	D	3 127	34x4	SS	2150	2150	1850	1850	1850	1850	
R.A.	8-3125	33.8	A-Kent	Zenith	W. Land	DD 3	130	35x4	SS	11550	11550	1550	1550	1550	1550	
ROSS	4-2125	12.1	A-Kent	Rebb	Wagner	DD 3	96	30x3	DC	495	495	935	935	935	935	
SAXON	6-2125	19.8	Remy	Stumb	Wagner	DD 3	112	32x4	SS	11285	11285	2575	2575	2575	2575	
SCHLIPS-BOOTH	8-2125	22.0	Remy	Zenith	Wagner	DD 3	120	32x4	SS	935	935	1450	1450	1450	1450	
D	4-3125	24.5	Remy	Zenith	Remy	C	3 110	30x3	C	Chassis	6000	6000	6000	6000	6000	
G	6-4125	45.9	Eisann	N. Webb	Boech	D	4 143	37x5	QDC	3800	3800	3800	3800	3800	3800	
5	6-4 25	38.4	Boech	Radd	Watha	DD 4	136	35x5	QD	11950	11950	2000	2500	3500	3500	
SINGER	6-3125	33.8	Spittford	Zenith	Apico	D	3 127	35x4	SS	12200	12200	2300	2300	2300	2300	
17	6-4 25	38.4	Boech	Radd	Watha	DD 4	136	35x5	QD	11950	11950	2000	2500	3500	3500	
STANDARD	6-3125	22.5	Remy	Schebler	Watha	DD 3	119	31x4	QDC	11495	11495	1495	2050	2050	2050	
STANLEY	2-4 26	6-3125	33.8	Remy	Radd	Watha	DD 3	123	35x4	QDC	12250	12250	2500	3500	3500	
STEARN	4-3125	25.3	Conn	Zenith	A-Lite	DD 3	115	32x4	SS	11225	11225	1225	1225	1225	1225	
STEARN	8-3125	33.8	Remy	Schebler	Wagner	C	3 112	34x4	SS	1385	1385	985	985	985	985	
STEPHENS	4-3125	24.0	Remy	Schebler	Wagner	C	3 122	35x4	SS	1250	1250	1750	1750	1750	1750	
STUDEBAKER	4-4125	36.1	Boech	Stumb	Remy	C	3 130	34x4	SS	2375	2375	2550	2550	2550	2550	
STUTZ	6-3125	23.4	Remy	Radd	Remy	DP 3	116	34x4	SS	11145	11145	1095	1145	1145	1145	
SUN	6-3125	29.4	Remy	Stumb	Remy	DP 3	115	32x4	SS	1115	1115	1135	1135	1135	1135	
17	6-3125	29.4	Remy	Stumb	Remy	DP 4	124	35x4	SS	1600	1600	1600	1600	1600	1600	
VELIE	6-3125	29.4	Remy	Stumb	Remy	DP 4	124	35x4	SS	11790	11790	1790	1790	1790	1790	
28	6-3125	29.4	Remy	Stumb	Remy	DP 4	124	35x4	SS	14600	14600	4600	4600	4600	4600	
27	6-3125	29.4	Remy	Stumb	Remy	DP 4	124	35x4	SS	1395	1395	1395	1395	1395	1395	
WESTCOTT	6-3125	29.4	Remy	Stumb	Remy	DP 4	124	35x4	SS	1860	1860	1860	1860	1860	1860	
S-17	6-3125	29.4	Delco	Radd	Delco	DD 3	125	35x4	SS	1425	1425	1425	1425	1425	1425	
WHITE	16-Valve	4-4125	28.9	Eisann	Own	L.N.	P	4 124	33x4	QDC	1395	1395	1395	1395	1395	
WILLIS-KNIGHT	4-4125	27.2	Conn	Tilman	A-Lite	C	3 121	34x4	SS	1860	1860	1860	1860	1860	1860	
WILLIS-KNIGHT	8-4	6-3125	36.4	Conn	Tilman	A-Lite	C	3 125	34x4	SS	1425	1425	1425	1425	1425	1425
WILLIS	8-4	6-3125	29.4	Conn	Tilman	A-Lite	C	3 125	34x4	SS	2685	2685	2735	2800	3000	3000
WINTON	6-3125	33.7	Boech	Radd	Bijur	DD 4	128	35x4	QD	3500	3500	3500	3500	3500	3500	
33	6-4125	48.6	Boech	Radd	Bijur	DD 4	128	35x4	QD	4760	4760	4760	4760	4760	4760	
48	6-4125	48.6	Boech	Radd	Bijur	DD 4	128	35x4	QD	4760	4760	4760	4760	4760	4760	

ABBREVIATIONS: "A-C" Allis-Chalmers, "L.N." Leeco-Neville, "Tilman" Tilman, "Atz" Atz, "Atomizer" Atomizer, "Reich" Reich, "Reichbach" Reichbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myra. NOTE—37½x5½" means that the rear tires are 37½x5½, and the front are smaller.

Delion Cord Tread Tire Guaranteed 7500 Miles

The Delion Tire & Rubber Co., Trenton, N. J., is placing on the market a brand new kind of pneumatic tire which is guaranteed to be permanently non-skid and will be adjusted on the basis of 7500 miles of service. The outstanding feature of the tire is that the tread is composed of a combination of rubber stock and fabric, with the fabric standing on edge so as to come constantly in contact with the road surface. In addition to reinforcing the rubber portion of the tread, this also gives the tire its non-skid qualities.

The construction of the tire is entirely different from that of any other insofar as the tread is concerned. The carcass, however, does not materially differ from other Delion tires. The fabric is impregnated with rubber under a new process by which the rubber is drawn into the fabric by suction instead of being forced in by pressure. In consequence, the bond between the rubber and fabric is closer and the interstices are more com-

pletely filled than by the other process. This results in a reduction of friction and precludes the possibility of moisture attacking the fabric, these two factors being the ones which cause the early breaking down of tires.

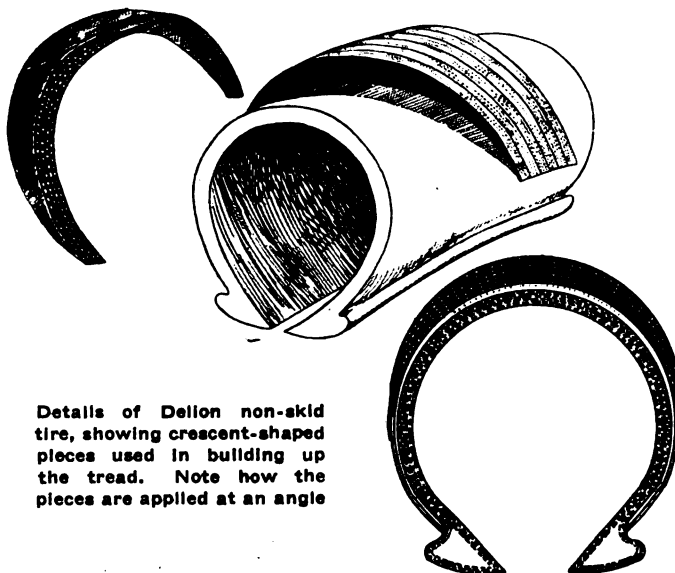
In making the tread three layers of

fabric are heavily impregnated with rubber by this new vacuum process. These three layers are then inseparably forced together under hydraulic pressure and become virtually a solid piece. From this piece crescent-shaped sections are cut

by machinery and these are laid diagonally around the outside of the carcass and are finally vulcanized into a continuous tread. From the method of making the crescents it will be obvious that the fabric contained in them stands on edge when the complete tire tread is assembled. As a result the whole outer surface of the tire becomes rough after a little use, the mixed surface of rubber and ends of cotton forming an excellent non-skid.

The price of the tires is approximately the same as the price of cord tires of other make, the present list being as follows:

30 x 3 1/2	.....	\$32.75
34 x 4 1/2	.....	52.75
35 x 5	.....	65.65
32 x 4	.....	44.50
34 x 4	.....	46.90



Details of Delion non-skid tire, showing crescent-shaped pieces used in building up the tread. Note how the pieces are applied at an angle

Coming—THE SHOW CALENDAR—Events

Chicago, Ill.	Used Car Show, Coliseum.....	May 5-13
	Chicago Automobile Trade Assn.	
Montreal, Can.	Used Car Show, Coliseum.....	June 20-27
	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Spokane, Wash.	Interstate Fair.....	Sept. 2-9
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C.	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 19
Cincinnati, O.	250-mile Race.	May 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.	Championship	June 9
Detroit	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.	Race.	June 23
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.	Championship	July 4
Tacoma, Wash.	Championship	July 4
Visalia, Cal.	Road Race	July 4

Spokane	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.	Hill Climb	July 14
Des Moines, Ia.	Championship	July 14
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.	Intercity Reliability	July 17-19
Intercity Reliability	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J.	Track Race	Aug. 17
Elgin, Ill.	Road Race	Aug. 18
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb	Sept. 8
Providence, R. I.	Championship	Sept. 15
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 23
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
New York	Speedway Races	Sept. 29
New York, N. Y.	Championship	Sept. 29
Uniontown, Pa.	Speedway Races	Sept. 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.	Race	Oct. 18
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 18
New York, N. Y.	Race	Oct. 27

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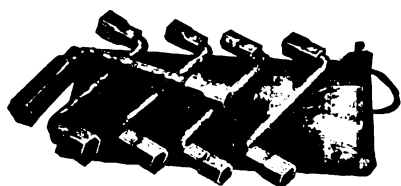
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Nearly a Million FORDS on the Road

Help KEEP them on the Road by Using

MOSSBERG WRENCHES

And Special Tools for FORDS



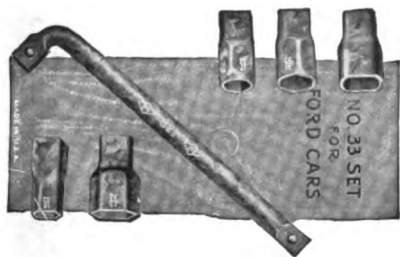
No. 17 Set—Heavy duty for Ford. 10 sockets, including those special sockets for spark plug, rear axle housing and cylinder head nuts. Price each, \$2.00



No. 30 "Ideal" Set for Fords. 10 sockets, including all special sizes. Ratchet handle, universal joint and extension bar. Price each, \$4.00



No. 15 "Major" Set—Covers all adjustments on Fords, including reversible ratchet handle. Price each, \$5.00



No. 33 Set—A small, forceful set for packing under the seat. Five special sockets and double-end offset handle. Price each, \$1.10



If your dealer cannot supply you we will ship prepaid on receipt of price.



Specially designed for Fords. Engineers' wrenches. 5 wrenches. 10 openings.

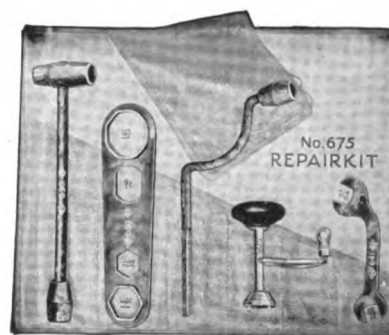
Your copy of complete Mossberg Tool Book No. 191-I if you will send address.



No. 645, Reverse and Brake Pedal Tension Spring Wrench. The only practical wrench for this work. Each 50c.



No. 660 Wheel Puller. Indestructible and efficient. Each, 80c.



Combining all the special wrenches that help the smooth running of your car. Price, \$1.40

FRANK MOSSBERG CO.

ATTLEBORO, MASS., U. S. A.

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D. L. Herman, Seattle, Wash.
W. W. Crandall Co., Nashville, Tenn.
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Ewing-Lewis Co., Los Angeles, Cal.

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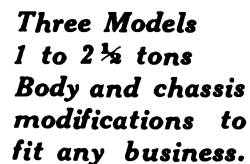
I There are other sections where the mettle of the truck gets a harder test—where all but a selected few have been tried and found wanting.

The internal-gear drive as used in the Denby is, we believe, at once the most efficient and most economical yet produced.

A Denby agency offers today wonderful possibilities of profit to dealers who are willing to do their share. And we are always willing to go into these possibilities fully and frankly with the right men.

Denby Motor Truck Company

Detroit, Michigan



MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

The Class Journal Co.

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"NORMA" BALL BEARINGS

(Patented)

Dependability— isn't that the thing that you want, above all else, in your car? Go to the root of the matter and you'll find that car dependability is a question of securing dependable ignition. Of importance hardly secondary is the necessity for dependability in lighting generator and starting motor. You are seeking facts? Note this:—

So general is the use of "NORMA" Bearings in the high-grade magnetos and lighting generators furnished on cars of the better class that the fact that its accessories are "NORMA" equipped is evidence of dependable quality in a car.

Be Sure—See That
Your Electrical
Accessories Are
"NORMA"

E q u i p p e d

THE NORMA COMPANY OF AMERICA

1790 BROADWAY

NEW YORK

Ball, Roller, Thrust, Combination Bearings



When writing advertisers please mention Motor World—it identifies you

Velie Six

Biltwel

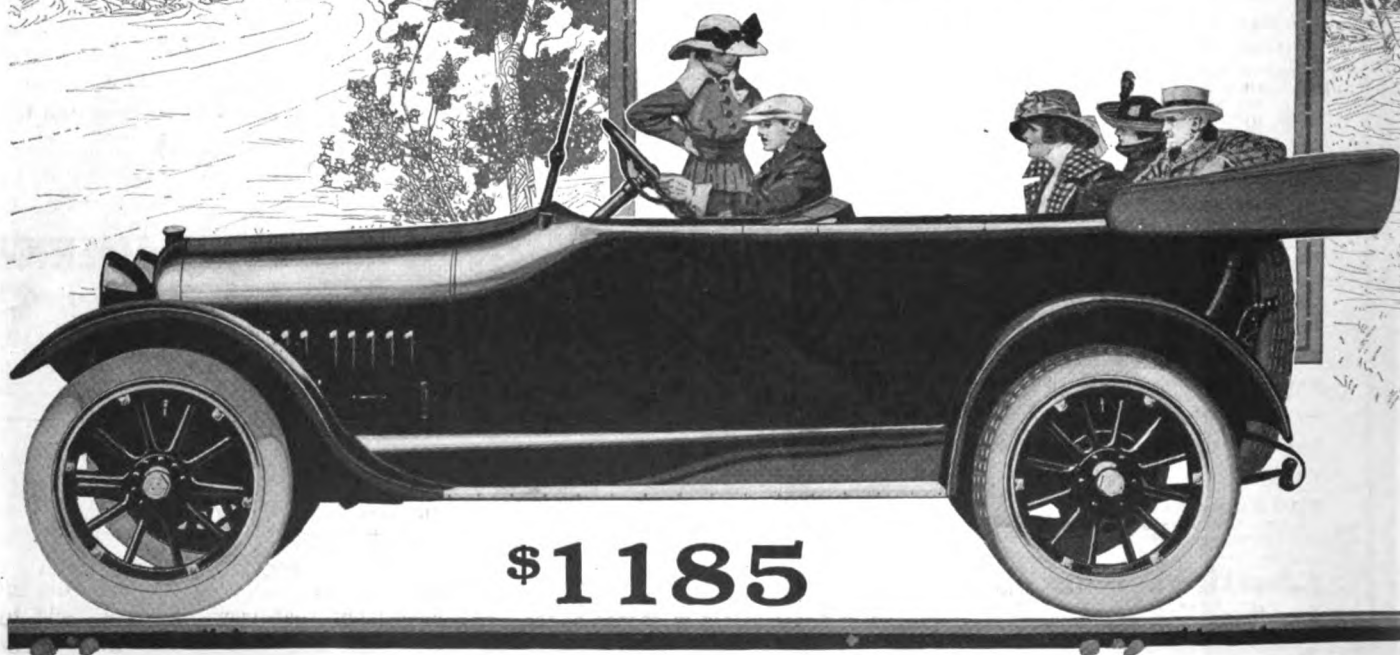
Present Demand Doubles Velie Output for 1917

DEALERS are confronted with an unprecedented demand for the Velie Biltwel Six. Orders received up to this time require *double* the number of Velie cars ever built before. The resources of A Mile of Velie Factory will meet this demand. Shipments are being made to all the open ports of the world. *In one day* recently sixty-five cars were driven away from the factory—each car bought and paid for by a new owner.

World-wide recognition of the Velie Values is responsible for this enormous increase which now insures that every month of 1917 will set a record. Appreciation of the quality in the Velie car, of its surpassing beauty, of the high-grade features given at a low price, and of the sincerity and honesty of purpose built into every model.

Eight body styles—Touring Sedan, Four-Passenger Roadster, Coupes, etc. Write for our liberal proposition.

VELIE MOTORS CORPORATION
115 VELIE PLACE Moline, ILLINOIS
Builders of Automobiles, Motor Trucks and Tractors



\$1185

When writing advertisers please mention Motor World—It identifies you

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, May 9, 1917

No. 6

Used Car Principles

- 1—Dealer Must Employ Specialist
- 2—Cars Must Be Overhauled
- 3—Customer Must Be Satisfied
- 4—A Simple Merchandising Problem
- 5—Clever, Truthful Advertising

*By C. R. Williams**

THE solution of the used-car problem rests with each dealer and necessitates the employment of a specialist. The time has come when prospects are refusing to buy cars, the purchase of which may end in a family tragedy financially and sometimes physically.

Used cars must be sold in good condition and the buyers must be fully satisfied that they are good mechanically or they will not buy them. It resolves itself into a question of confidence between buyer and seller, and the dealer who wishes to gain the confidence of the car-buying public must first earn it.

I believe that a dissatisfied purchaser is entitled to his money back, and I am working the problem out here in Seattle to the end that if we make the mistake of allowing a car to get through our repairshop and sales floor in such a condition that the buyer is dissatisfied, he can get his money back.

The market for used cars is practically a virgin field, and we are developing it here very rapidly by a policy of strict honesty. The policy of giving a customer what he pays for in used cars has proven almost magical with us in selling a mighty big lot of used cars.

Selling used cars is not different in any way from selling new cars. It is simply a merchandising proposition. A new car is worth and sold for a price set by the manufacturer. This price is arrived at by computing the cost of manufacturing plus a reasonable profit, and is often governed by the laws of demand and always depends upon competition.

I figured out that the values of used cars must be as absolutely fixed as the values of new machines, but the dealer who sets a valuation upon a used car must do it himself. No factory can help him. The man who can correctly value used cars to-day must be the great-

ONE OF THE HANDSOMEST CARS
IN SEATTLE
WILL BE OFFERED FOR SALE
MONDAY.

It's what I would call high grade. A Six; a special job all the way through and a beauty; it's painted a rich wine color with ivory wheels and striping; mohair seat covers with maroon leather binding or piping. This car carries a 30-day standard factory warranty. The price new is \$1,325.

MY PRICE IS \$975.

YOU SAVE \$350.

And I will take a Ford or some other car around \$300 to \$400 as part payment. Here is my opinion of this car: It's beautiful to look at. If you see it, you will want it. You can't buy a better built car under \$2,000. It's a light six (weight 2,935 lbs.), powerful, yet economical to operate.

It will be a pleasure to show you this car and the 20 to 30 other bargains we offer.

FORDS, OVERLANDS, BUICKS,
CHALMERS.
C. R. Williams, Manager Used Car
Department.
WATERHOUSE-SANDS CO.,
1514 BROADWAY.

The Waterhouse-Sands Company depends to a large extent on classified advertising. Here is a sample ad of the kind that is bringing business

est specialist in the automobile business. He must be one who has had years of experience in selling different makes of cars. He must base his estimate each day of any car's sale value upon the following:

A car's mechanical condition for a trade-in or allowance-price must be based upon not what the car will sell for, but what the car will sell for after he has overhauled it thoroughly, possibly recovered the top, made tire changes and done the numerous things which he must do if he is to sell the car so that it will bring him the good-will and friendship of the purchaser.

This method of selling used cars is the only method which will solve for a dealer his used-car problem. In entering into a contract with the Waterhouse-Sands Co. to handle the used-car end of the business, it was made a part of the agreement that every used car sold by my department must first go through the shop for a thorough overhauling and rebuilding irrespective of its age or price.

*C. R. Williams entered the automobile business in 1908 as a publicity and advertising man for the Winton branch in Seattle. He later organized a used-car department for this company and became sales manager for the Seattle branch. He later went to Portland, Ore., and spent a year there as sales manager for the Portland branch of the White Co. He returned to Seattle in 1913 and was connected with the Hudson agency as a salesman and for 2 years acted as distributor for the Oldsmobile and was president of the Washington Auto Exchange, a com-

pany organized to sell used cars for dealers. He entered the employ of the Waterhouse-Sands Co. about 2½ years ago. He has had a very remarkable success as a salesman for the company, winning the salesmen's contest last year and a trip to Detroit. He organized and was placed in charge of the Used Car Department for the company 2 months ago and has sold to date in 2 months and 10 days over 50 used cars. His knowledge of used cars is probably as thorough as that of any dealer on the Coast, and what he states here should be of value to others.

The Market for Used Cars Exists in Every Hamlet—Williams

Editor Motor World:

In response to your invitation as expressed in a recent issue of Motor World, I am inclosing copy of an article.

For the further enlightenment of the readers of Motor World I offer the following information:

We have not created any market for used cars. This market already existed and it exists in every hamlet, town and city in the United States. We have merely developed the used-car market. During the month of March we spent \$250 in classified advertising in the Seattle daily papers, and during this month we sold forty cars. We are spending this month \$175 for 10,000 circulars, copies of which we inclose. These circulars will be distributed as follows: 3000 into Ford cars on the streets of Seattle and 7000 at the gates of our big shipbuilding plants.

We are inclosing a few samples of our advertising. Ninety per cent of our advertisements are written with the idea of instilling confidence in our firm into the minds of prospective purchasers, and the effect of this kind of advertising is certainly cumulative. We sell cars every few days to people who started to read our advertisements 30 days ago.

The origin of every sale we make is determined by questioning the customers immediately after the sale is closed. About sixty-five of the seventy-eight sales made

since Jan. 22 were traced directly to our advertisements. This advertising has solved our used-car problem.

The writer works practically alone with the assistance of a young man taken 30 days ago from our accounting department and one mechanic who does any demonstrating that is done. The longest demonstration we have made has not been over twenty city blocks. The selling is done on the salesfloor. The saving effected by this method of "floor selling" is very great as against the old methods when all of the salesmen employed by this company were at liberty to take any used car anywhere, at any time. Our used cars come to us from the shop in good condition and stay that way until they are sold.

P. E. Sands, president of the Waterhouse-Sands Motors Co., former branch manager for Studebaker and one of the most prominent automobile men on the Pacific Coast, will verify the following statements:

We have made enough gross profit on our second-hand sales since organizing a used-car department to pay the salaries, advertising and overhead expense of this department and still leave a substantial net profit. We have moved seventy-eight used cars in two and one-half months at a profit, and the used-car business is getting better established all the time.—Waterhouse-Sands Motors Co., C. R. Williams, Manager Used-Car Department, Seattle.

On examining a car offered us as part payment on a new Studebaker or Marmon, I estimate, with the help of our mechanical superintendent, exactly what it will cost the Waterhouse-Sands Co. to rebuild this car, and we deduct this amount from the allowance price.

In valuing cars I base my valuation just as the manufacturer of the new car does, upon the big or small demand or market for any particular car. Most of our valuation of cars is based according to what cars of the same make and

year are offered for by other dealers, and a careful check is made by us each day of all cars advertised in the daily papers.

If fifty cars of any make are advertised in the Seattle Times during February at an average price of \$450, then that is their going value, for most dealers want for a car exactly what they advertise it for sale at. The number of cars offered sometimes affects the price, but the number of cars sold of a certain series of any make originally in this territory must also be considered. We

believe absolutely in our policy of rebuilding used cars. If it is necessary that we suffer slight losses through added expense in rebuilding used cars it will be offset magnificently in the end by the satisfaction of selling hundreds of good cars to customers who will recommend our firm as absolutely reliable.

I personally have always believed in the wisdom of buying a used car. It certainly affords one a chance to make a great saving in the purchase of an article which oftentimes represents the

IT DON'T PAY TO GAMBLE WHEN BUYING AN AUTOMOBILE

About 90 per cent of the used cars offered for sale by private owners over blind ads and private phones are really in the hands of curbstome auto dealers, commonly called "gypts," true descendants of the old horsetrading gypsy. They keep them in out-of-the-way garages, where the buyer who likes to gamble on his ability to pick a bargain is most likely to stumble on them.

BE CAREFUL.

You can't beat the "gyp's" game; he is the smartest fellow in (or out) of the car business.

BUY FROM A RELIABLE DEALER. Practically every big dealer in Seattle offers good cars for less money, and tells the truth about every car. The Waterhouse-Sands Co. is an old and reliable firm. You can buy any used car we offer in perfect safety. The values will surprise you. No matter how low the price, the car will be in good mechanical condition if it's on our salesfloor. Open Sunday, 9.30 to 4.30.

FORD, \$250; OVERLAND, \$250.
FORD, \$275; STUDEBAKER, "25," \$300.
FORD (ELECTRIC STARTER), \$330.

**GOOD STUDEBAKER CARS, ELECTRIC
STARTED AND LIGHTED,
\$475 to \$850.**

WATERHOUSE-SANDS CO.,
1514 BROADWAY.

Excellent Ads

—in language, set-up and argument.
Copy them.

WE WOULD NOT TRADE OUR REPUTATION

of being a safe concern from which to purchase a used car for \$10,000 in gold; for the buying public's faith in our integrity and dependability enables us to sell our good used cars at the smallest possible advertising and demonstrating expense. Our used car department is not expected to sell cars at a profit. We sell them at low prices but quickly. The profit is made on the new cars.

HERE'S A CHANCE TO TRADE.

Our new 40 H. P., 4 cylinder car sells for \$1,050. We will sell you one run only a few months, overhauled, guaranteed and refinished for \$825. You can turn in your Ford or smaller car as part payment and easy terms on the rest. It's a chance to get a good car without going into very big money. We have cars for sale with starters and lights; prices \$400, \$525, \$625, \$650 and some roadsters.
WATERHOUSE-SANDS CO.,
1514 Broadway.

THE STRONG FINANCIAL

RESOURCES OF THE

WATERHOUSE-SANDS MOTORS CO.

Enable us to protect ourselves against the great shortage of cars which now confronts other dealers all over the country. Not only Studebaker dealers, but those handling other makes.

HAVING CARS ON HAND

Enables us to make trades which are impossible to small dealers who would be glad to make them if their financial condition permitted. This condition of affairs in the automobile industry combined with

THE GREATLY INCREASED POPULARITY OF STUDEBAKER CARS THIS YEAR

Has given us the opportunity to pick and choose our trades. We get the best trades in cars in Seattle. Come and examine the Buicks, Overlands, Hudsons, Maxwells and Ford cars on our salesfloor.

40 DIFFERENT CARS ON HAND.

WATERHOUSE-SANDS MOTORS CO.,
1514 BROADWAY.

Kill the "Short-War Fallacy"

It Is Going To Be a Long, Hard Fight and We Must Be a Part of It, Not Apart From It

By Pomeroy Burton

Manager of the London Daily Mail

THE greatest danger which threatens the United States is the Short War fallacy.

This is the great message which Pomeroy Burton, manager and director of the *London Daily Mail*, brought to members of the Merchants Association of New York last week.

"But for this Short War fallacy," he went on, "the war might now be nearing the end—indeed it might be over."

The one thing that Americans must realize is that this

is a real war, that it is America's war, that we are in it and a part of it.

Just because German guns have not boomed in America; because there has been no blood spilled on American shores; because Americans cannot realize that they are a part of the great conflict and not apart from it, there has not been awakened the great wave of patriotism, of love of country, of home, that will bring about a realization of the seriousness of the conflict and of the utter foolishness of assuming that it will be a short war, or that it is about over.

"Five weeks of careful inquiry convince me that the great majority of people in this country believe the war to be nearing an end," said Burton.

"They look upon the entry of the United States as a part of the stage-setting for the last act of the great war-drama.

"It is the Short War fallacy in a new guise.

"But for this same Short War fallacy, the war *might* now be nearing the end—indeed, it might be over.

"The people of every nation now engaged began with the firm conviction that they were in for a short war.

"That fatal theory has entered largely into the war preparations of every country involved. It has shaped war policies. It has warped and misguided public sentiment. It has cost countless thousands of human lives. It has prolonged the war. It has been Germany's strongest ally.

Worst Yet To Come

"The best informed military experts believe to-day that the war is *not* nearly over. They believe its worst and most dangerous stages are still to come.

"One of the foremost men in Great Britain has stated publicly within the past week that the war's end is invisible.

"Barring possible collapse through hunger, Germany can go on for years.

"Barring possible failure to meet and overcome the submarine campaign, the Allies can go on for years.

"Neither of these contingencies should be considered for one moment in shaping the war program of this country.

"Neither one is likely to happen.

"The only safe basis for this country to proceed upon is to assume that the *United States alone* is entering upon a war with Germany—a war which will tax its full resources and its entire fighting strength.

"Americans utterly fail to realize that

before this war is over, this country may have to put into the firing line, and maintain there, not less than 500,000 fighting men.

"No democracy was ever effective in war without the full understanding and backing of the masses—of the working people.

"Legislation alone will not make this or any other country an effective war factor.

"This country is a *long way from the battlefields of Europe, and there is no doubt that great masses of its people feel themselves apart from the conflict, not a part of it.*

People Can't Understand

"They feel that it is Europe's war, and they do not understand why this country should mix up in it. They utterly fail to realize that the things involved are their own personal freedom, their own material interests, their own and their children's futures—all of which are as much at stake here to-day as they are to the people of England, and of France.

"Perhaps a glance at what has taken place in England during the past two years will serve to make that point clear.

"England's original army consisted of 150,000 men. England's present army is 5,000,000.

"The British army at present in France is 2,000,000 strong. The remaining soldiers are divided into the armies of Salonica, Mesopotamia, Egypt, German East Africa, and India. In addition to the 5,000,000 men in arms, England has more than 3,000,000 men engaged in war industries.

"She also has a reserve of another million men of military age in various stages of readiness, on call, or in active training, to be utilized for military purposes, if emergency requires. However, she can ill spare any more men from the land, from the collieries

or from the factories, and there is some urgency in the direction of transferring more men to the lands, owing to the world-wide food shortage.

"This food shortage is the natural result of putting something like 40,000,000 men into active military service, taking them in large measure from ordinary productive occupations in all the disturbed parts of Europe.

"Nothing could more strikingly illustrate the essential nature of the people's co-operation than the development of England's great Ministry of Munitions. There are now nearly one hundred government plants which have been specially built to cope with war requirements. Working directly under the Ministry of Munitions are 2,500,000 men and over 1,000,000 women. Women are engaged in more than five hundred munition processes. The production of guns and munitions has multiplied sixfold during the past year.

Colossal War Shipments

"The British have moved back and forth across the Channel over 8,000,000 men, over 10,000,000 tons of explosives, over 50,000,000 gallons of gasoline, and over 1,000,000 sick and wounded, and all this without any losses due to enemy attacks.

"England's original navy was 150,000. Her present navy exceeds half a million. In addition to the direct naval requirements, England is obliged now to supply all her troops, all her armies in distant parts, with their equipment for war and necessities of life, and in addition she is also obliged to keep huge fleets constantly busy with the transportation of coal and other essential commodities to her allies, notably France and Italy. This means an enormous sea force, in addition to the regular naval force, and the organization and control of this auxiliary navy is one of the great achievements of the war.

"No such scale, and consequently no really adequate co-operation with the Allies in this war, is possible without the full and earnest co-operation of the whole people of the United States.

"That co-operation cannot be secured until they know the facts and feel the full force of their responsibility.

"I would recommend to those who are shaping the program for war, as a preliminary to all else, a great and far-reaching campaign of information to make the people understand this war. The schoolrooms, the lecture halls, the churches, the libraries, the city halls, the public squares and the movies—all the meeting places of the people in every State of the Union—should resound with

the voices of America's greatest and most forceful speakers, telling the people—and all of the people—the simple truth, the basic facts about this war.

"This campaign should be conducted on the same scale as if it were a presidential campaign, only the two parties, instead of flooding the country with information about the virtues of one side and the defects of the other, would be joined together in spreading all the facts about the war which it is so essential for the people to know.

"And these war facts, when told to the people, should be printed in every newspaper in the land, and should be distributed as leaflets to every household in every city and town and village of the

Central and Western States of the Union.

"The two great needs which confront this country at this moment are:

"First, co-ordination of effort at Washington through a War Council fully empowered to deal with all war problems, in consultation, of course, with cabinet members, legislators, experts and others, and

"Second, and equally important, an extensive and systematic campaign of information, conducted through the advertising and news columns of every useful publication in the United States, designed to make the people understand this war.

"They are far from understanding it now."

Hudson Racers Ready, Practically Stock Cars

THE Hudson racing cars are now ready. It was only when the Hudson company was convinced it could send a fleet of racers onto the speedways which would truly represent stock car qualities that it finally decided to enter the big speed events. Few departures have been made from stock car structure.

The bore of the five racing specials is 3.50 in.; stroke, 5 in.; 288.9 cu. in. displacement. The crankcase and cylinder block design is standard. The latter is equipped to take two carbureters on the same manifold. The crankshaft is the standard patented Super-six design. All other parts are of standard materials except the pistons, which are Magnalite metal instead of cast iron.

By reducing the weight of the standard parts through dispensing with surplus metal and decreasing certain sections, it is the hope of the Hudson engineering department to gain information which may be of use in further developing and improving the standard design. For instance, it would be impossible to accurately develop improvements in heat treatment which would be of benefit to the stock product if any important change were made in standard design.

Even the timing is standard. The valve areas have been increased from 113/16 to 155/64 by boring out the valve port and substituting a valve with a larger head. The lift is increased from .3125 in. to .3175 in., about 1/16 of an inch. Lighter valve tappets have been obtained by omitting the adjustment and making them hollow.

The standard valve springs have been compressed to make them stronger, and thus insure greater accuracy of action at high speeds. Timing gears are standard, but the camshaft is changed to give the increased valve lift. Standard material is used in the connecting rod assembly and the wrist pin, but they have been pared down to secure the least weight.

The engines are fitted with an auxiliary high-pressure oiling system operated from the camshaft. This is a rotary or gear pump, designed to circulate the heavy castor oil used for high

speed work. The oil is pumped through a cooler to the four main bearings, and from there direct to the connecting rod bearings. The object of this pump is to drive a sufficient quantity of cool oil through the connecting rod bearings to carry off the heat generated by the development of great excess power.

These motors develop 115 hp. and will consistently sustain this load for many hours. It is apparent from this detail of Hudson racing car specifications that these engines are not racing engines in the accepted use of the term. More accurately, they are commercially practicable modifications of a stock product, and would be equally serviceable in touring or for high speed work, were such power in demand.

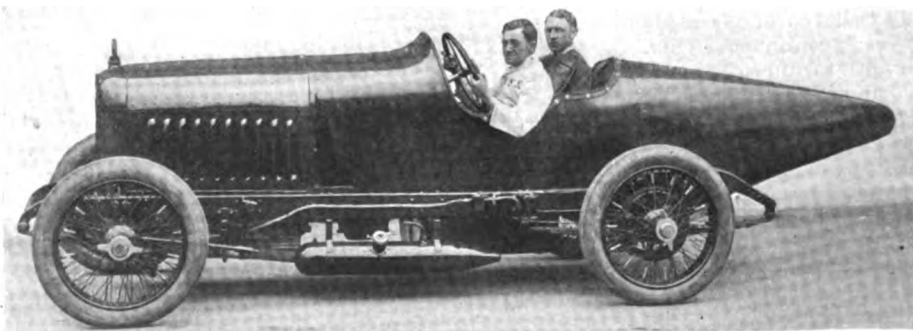
The frame is a standard touring car frame except that it has been shortened, drilled and cut away to make it lighter. Axles and springs stock are the same. They have been reduced in weight only by paring down the standard product. The transmission, the propeller shaft, universal clutch, pedal control and all minor details are of regular Hudson stock materials. The radiator is standard but is enclosed in a special shell designed with the sole idea of lightness and minimum wind resistance. The same applies to the body, which weighs about 85 lb. complete with tail, floorboards and bonnet.

Cooling louvres in the bonnet at the body dash are designed to permit the maximum circulation of air through the hood and carry away the heat of the exhaust manifold. The complete car will weigh approximately 2100 lb. empty. The maximum gasoline to be carried is 50 gal.; oil, 11 gal. There are two gasoline tanks and two oil reservoirs, the latter separated to afford the best cooling facilities.

Except for the cost of building the special body the racing special has been produced from the standard Super-six at a moderate extra cost. As a quantity production car it could be made at a cost slightly in excess of the Hudson Super-six.

The personnel of the Hudson team includes Ralph Mulford and Ira Vail, two of the greatest racing drivers, with Bill Chandler, Ralph Kriplen and Jack Gable as reserve drivers. Billy Chandler will have charge of the mechanics and rule the pit. Arthur J. Hill, formerly manager of Dario Resta, will manage the Hudson team.

All of the prize money that the team wins in the big race events will be divided among the men comprising it, and the Hudson company will share in it in no wise. The Hudson has no desire to make money out of the racing campaign. It is probable that the team will divide some big prizes during the season.



There are few departures from stock design in the Hudson racers, of which this is the first. Billy Chandler, at the wheel, and Jack Gable, in the other seat, will be reserve drivers

Scaring Yourself Out of Sales

GEORGE BECKWITH, who rather looked up to Tommy Trumbull, since the latter was listed as sales manager for C. J. Reilly, Inc., came in the door, walked over to Tommy's desk and relieved himself of this:

"Mr. Trumbull, why can't I sell a car to a woman with a slender, narrow face?"

Tommy let this newest of the Reilly salesmen stand unanswered for a few seconds. The principal reason was that Tommy didn't know what to say. Then he replied:

"I don't know. Can't you?"

"No, sir, I can't! Every time I try to talk to a woman with a slender, narrow face my heart goes down in my boots; I know I'm going to have trouble with her and I always do."

"That's funny," smiled Tommy. "When did you discover this and how long have you been terrified by these women with hatchet faces?"

Hates 'Em

"Always!" exclaimed George. "I always hated thin-faced women. Ever since I was a kid I've hated them. I guess it's because I had an aunt with a face like that and she always terrorized me whenever I went to her house. She made me keep still, she wouldn't let me run and play and

I hated her and was afraid of her. And every time I see a thin-faced woman I presume that old aunt-feeling creeps through my bones."

"And that's about all there is to it. It's you, not the thin-faced women," said Reilly, who had listened in an amused way to the sales tyro's dissertation.

"Yes?" said George. Tommy was glad to be relieved of his explaining job.

"Yes," continued Reilly, "you believe you are afraid of thin-faced women—so you are. If you believed you were afraid of fat men you would never be able to sell a car to a fat man, and if you believed you could never drive a car it wouldn't be safe to trust you with one. It's you, not the thin-faced women."

"But, isn't a thin-faced woman a mean dispositioned thing? And aren't they crabbed and hard to get along with?" pleaded George.

"What if they are? If it were easy to sell our cars we wouldn't need so many salesmen. We have you fellows around here to sell cars to people who don't know they need them. Your job is to get through these thin-faced dispositions

By Ray W. Sherman

and sell the cars. If you can't sell unless you have just the right kind of prospect to work on you're not an all-around salesman.

"You mustn't let your imagination stand in your way like this. You must make it help you. If you believe you can sell cars only to men who have blue eyes, blue shirts, blue ties and blue suits

cringe and crawl he knows you're afraid of him and his confidence goes up just as fast as yours goes down.

"Don't you remember when you were a kid and used to fight. Do you remember the kid who you always thought could lick you? And do you remember the day he picked on you because he knew you were afraid, and how you suddenly discovered you could clean him up if you fought hard? And then what a boost your confidence took! You fought harder than ever. And the other kid's confidence dropped and he fought less and less. And finally you walked all over him and chased him off the lot. Why? Simply because your confidence picked up and you worked hard, and he lost heart. A disheartened man is licked before he starts to fight.

Sweet Revenge!

"Why don't you imagine that every thin-faced woman is your aunt. You have grown up now and needn't fear your aunt any more. You're a man. Wouldn't it be great revenge to make her do something she didn't want to do? Well, here's a scheme: Just imagine that the Sennett is a rotten old boat but that you're going to unload one on your aunt to get even. Of course, you'll

have to lie—in your imagination—when you tell what a good car it is, but these imaginary lies will help you put the deal over on your thin-faced aunt. Imagine you're a schemer, a regular mean devil.

"And don't ever get the idea that you are afraid of any one. You are in business now. You are working for one of the best and most reliable business houses in Callawassa. When you go in to see a man you are not George Beckwith—you are a legitimately commissioned representative of C. J. Reilly, Inc. You have as much right to talk to any business man as he has. Your time—which is mine, because I pay you for it—is just as valuable as his. You **MUST** bear these things in mind and stand up for your rights.

"Why does any one respect and listen to a Federal officer, no matter what sort of dub he may appear to be? It's because we know what he represents—and he knows it and knows we know it. So he apologizes for nothing, merely takes what is his right and acts like a man, which is what every salesman should do."



you'll stand around a long time before you get away with many Sennett sales. You can imagine yourself out of a fortune, and if you are a good enough imaginer you can imagine yourself into millions.

"Some salesmen, when they begin to sell, imagine that a banker is a hard man to sell. They're more or less right, for all prospects are hard to sell. But these beginners quake and are in awe in the presence of the banker. They sort of feel they have no right to talk to him, that he is a superior being, that they are using his time and have no right to it. They're scared when they go in and more scared when they come out.

"All that is imagination. If the banker owed you two dollars and couldn't pay it, and if you knew he couldn't pay it and would like to borrow two dollars more, would you be afraid of him? No! You'd walk in and almost kick the door-boy out of the way and you'd tell that banker to produce that two dollars or you'd wreck his bank. You would act as though you had a right to talk to him—and he'd listen to you. But when you

Chicago's First Used Car Show

Sells

50 Cars in 2 Days

Pictures of the Show are on
the Two Following Pages

THE first Used Car Show of the Chicago Automobile Trade Association is drawing big crowds every day. In attendance and sales it is exceeding the best expectations of the dealers. It will go a long way toward solving the used car problem.—Editor.

CHICAGO, May 7—Chicago's first Used Car Show was opened to the public on Saturday, and by Sunday night a total of 50 cars had been sold for \$46,895—an average of \$938 per car. The show is to run one week and will close May 13.

To date the show has exceeded all expectations in the number of sales that have been made and in the crowds which it has drawn. Despite the lure of the Joffre-Viviani celebration, the Coliseum was filled to capacity from the time the doors opened until they closed at night. Within the first half hour after the show opened a Haynes roadster was sold and a few minutes later a duplicate of the Hupmobile Capital-to-Capital car was sold.

In all there are about 120 cars on view; cars that are sold are removed three times a day and others put in their places. Every car on view has been thoroughly overhauled and the majority have been repainted or revarnished. Each has three tags upon it, these giving its specifications, its pedigree and a certificate of inspection made by a committee of technical men.

Just prior to the opening of the show cars of almost every make assembled at Thirtieth Street and Michigan Avenue ready to proceed en masse to the loop as soon as the Joffre-Viviani parade passed down Michigan. Flag-bedecked and headed by a band, the parade came into the loop, circled and went back south to the Coliseum.

Touring models were in the majority Saturday, but there were many limousines and roadsters. Few of the offerings were more than 3 years old. It was noticeable that each exhibit was made of cars handled as new cars by the exhibitors. As the show progresses this display will become more complex, for every dealer has used cars of several makes which will be put on sale later in the week. Thus, one may find the same make of car in several booths as the show progresses.

Decorations are on an elaborate scale

running to green, white and American flags. The entire ceiling is hung with flags. Exhibits have a background that resembles a gate, with two pillars, on top of which are potted plants. There is a lattice for a short distance each side of the pillars and then a solid, four-panel, gate-like section. Each exhibitor has two such spaces and the divisions along the aisle are miniature sections of the pillars at the back, these, too, being topped with potted plants. The booth divisions are yellow and white.

Saturday night the show committee of the Chicago Automobile Trade Association, under whose auspices the exhibition is being held, declared that the success of the first day far exceeded the most optimistic predictions. Even the oldest salesmen and dealers on the row could not remember a time when there has been a more thoroughly buying crowd, and in this respect it appears the Used Car Show will outshine the national event, where there are so many who go only from desire to see the new models.

The idea of one price, marked in plain figures by the appraisal committee, seemed popular with the crowd from the start. By the time set for the evening removal hour of those cars that had been sold, more than thirty were moved out and others seemingly as attractive brought in. The display of electrics is good and seemed to attract considerable attention among feminine visitors.

As usual it was the night crowd that swamped the dealers. Buying continued right up to the time of closing the doors at 10:30 p. m. There was some discussion about keeping the show open Sunday, but this was overcome by those who pointed out that Sunday is the most popular day with buyers of used cars, many of whom cannot spare the time to attend week days.

There were a great number of out-of-town buyers in attendance and it is expected that this will be the case throughout the show. Farmers from down state and other nearby states are expected to be in looking for real car bargains.

Each exhibitor will distribute 600 tickets, members of the two motor clubs will be given two tickets each, and street cars, electric sign and newspaper advertising will be used to the limit to get the public to the Coliseum during the ten-day exhibit.

There are twenty-nine accessory exhibits around the outer edge of the Coliseum. One of the most novel of these is that of the Motor Salvage Co., Chicago, which dismantles cars and sells the parts. Each day a car will be torn down and it is expected this will interest a great many of the visitors.

Among the exhibitors are:

Chicago Allen Co.; Rauch & Lang Co.; Emil J. Krimsky; James Levy & Co.; Thomas J. Hay, Inc.; Chevrolet Motor Co.; Cole Motor Co.; Crow-Elkhart Co.; Anderson Electric Car Co.; Dashiell Motor Co.; Ralph Temple Automobile Co.; Erwin Greer Auto Co.; Franklin Motor Co.; Simmons Motor Car Co.; Harry Newman Co.; Haynes Motor Car Co.; Louis Geyler Co.; Schillo Motor Sales Co.; King Motor Car Co.; H. P. Brandstetter; Marmon-Chicago Co.; Maxwell Motor Sales Corp.; Mitchell Automobile Co.; Moline Automobile Co.; Tennant-Oakland Co.; Overland Motor Co.; Owen Magnetic Co.; Packard Motor Car Co.; Byrd-Sykes Co.; Hughey Motor Car Co.; H. Paulman & Co.; Reo Motor Car Co.; L. Markle Co. Illinois Motor Co.; Winton Co.

Omaha Tackles Used Cars

OMAHA, NEB., May 7—At a business meeting of the Omaha Automobile Trade Association there was a discussion of the used car problem and a committee was appointed to formulate plans of action.

The used car sale situation has been as grave in Omaha as elsewhere for several years past, but all efforts of individual dealers and distributors here to evolve and put through concerted action to eliminate its evils have proven hopeless until the trade association was formed. Now it appears that this object may be realized. The committee which was appointed will sift and tabulate records from cities all over the country where the problem has been dealt with, and recommend a definite plan at the next regular meeting.

Young Men, Attention!

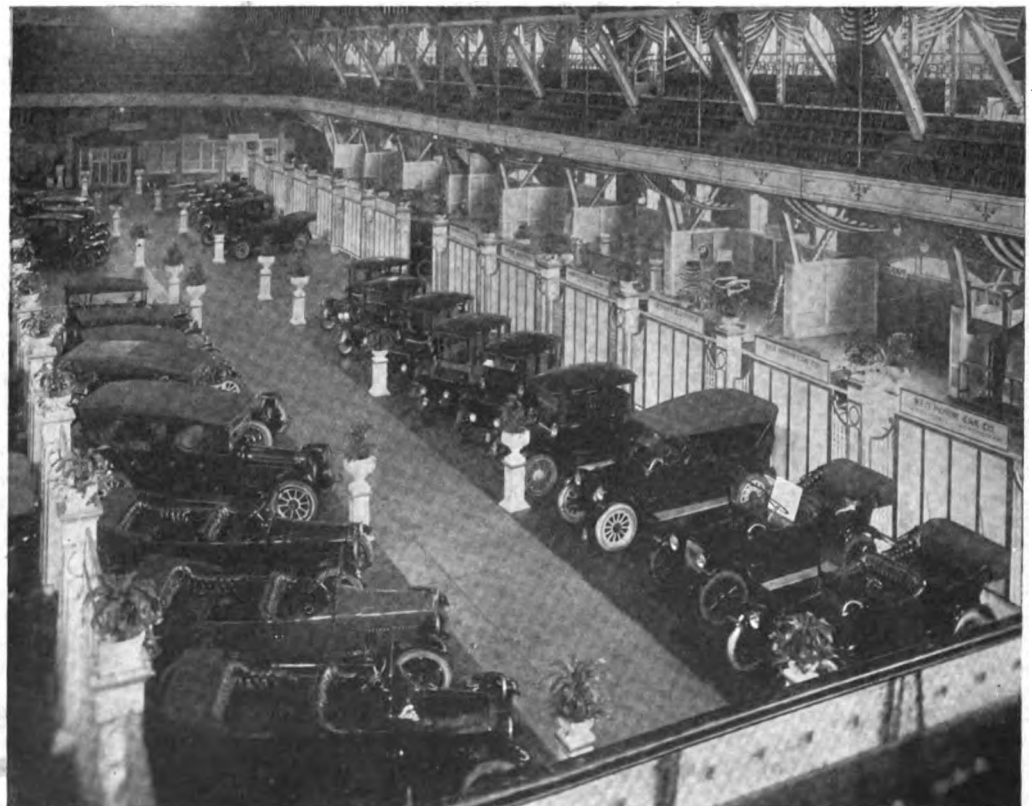
CINCINNATI, May 7—The Barlow-Hodson Motor Car Co., used-car dealer, has entered preparedness work in a new way. It is agreeing to take the used car of any young man entering the army or navy and sell it for him without profit. Furthermore, the company will buy cars from any young men who enlist, giving present market value.

Read the Story
on the
Preceding Page

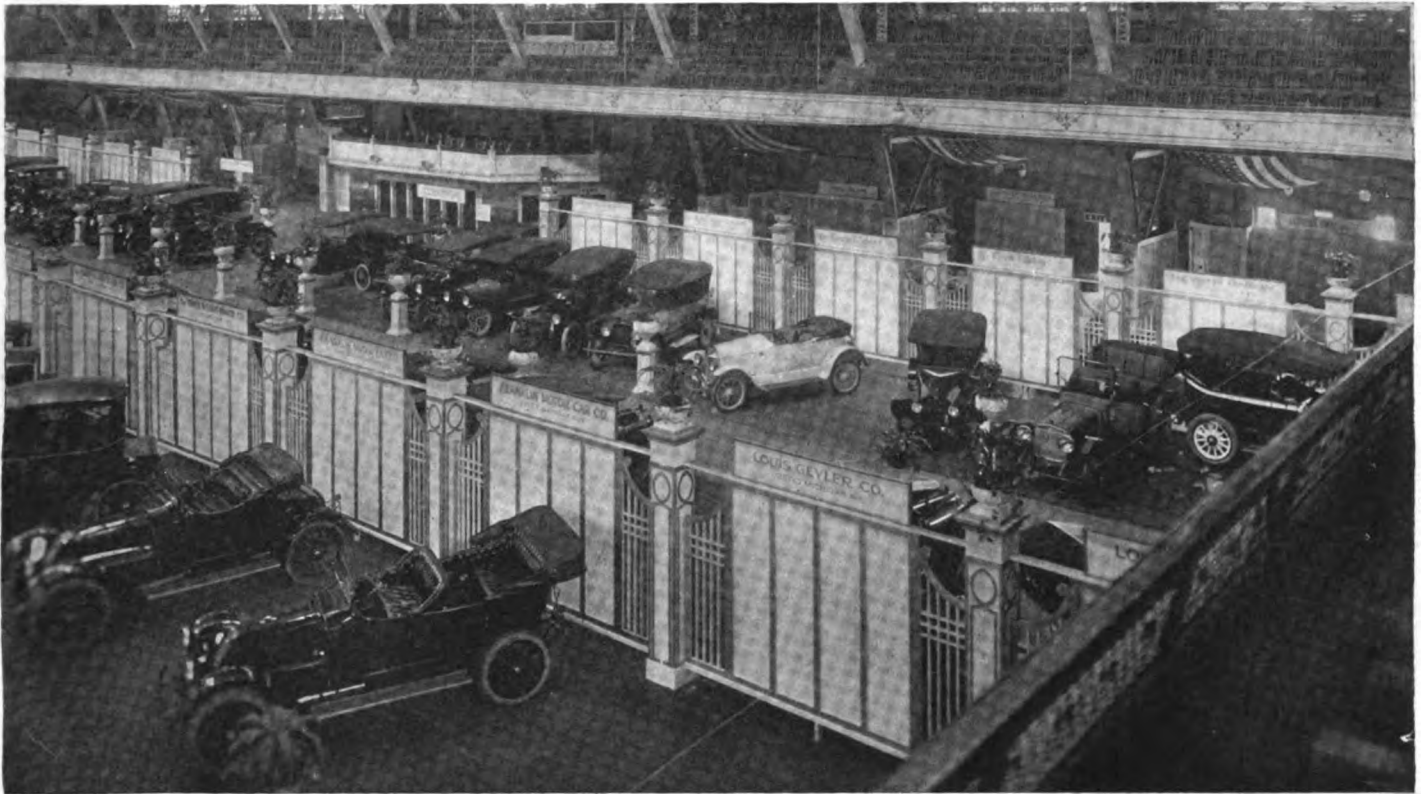
Here's What Chicago's First



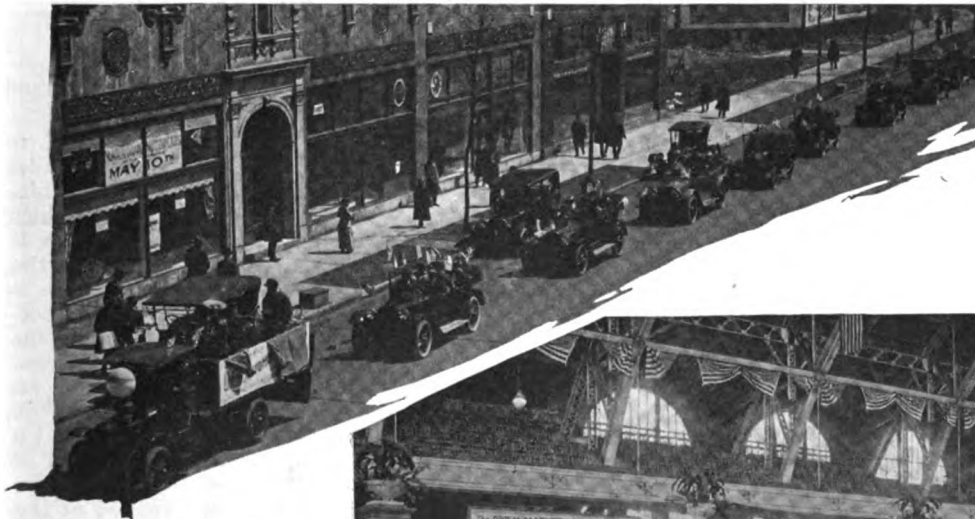
Chicago's first Used Car Show has all the appearance of a new car show and it is drawing crowds every bit as big. The decorations were put up especially for the show and every car was thoroughly overhauled and in many cases repainted before being put on view. Above is a general view of the Coliseum. At the right is another section showing the exhibit of used electrics.



Used Car Show Looks Like

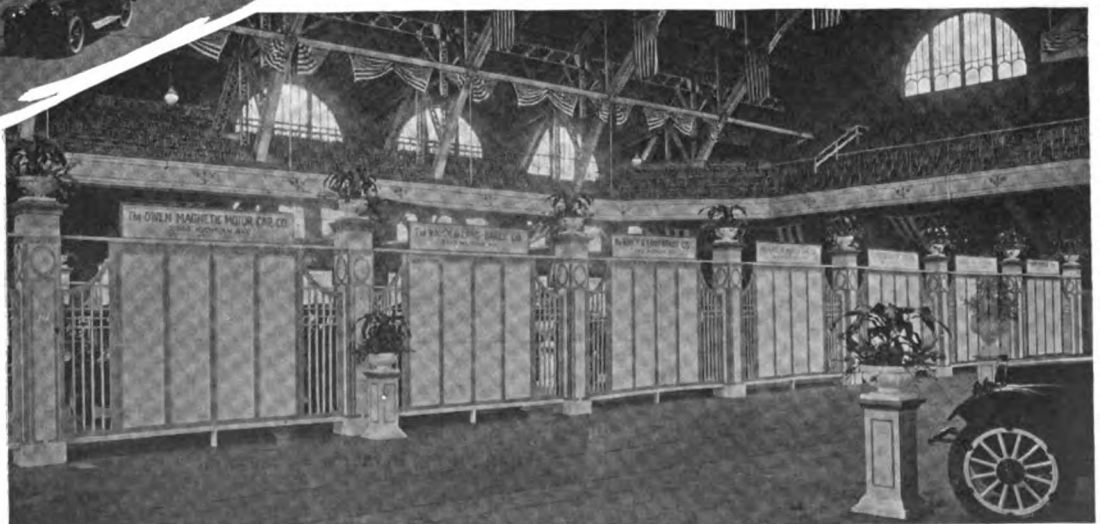


All the exhibit spaces are uniform in size and appearance. Cars that are sold are moved out three times a day and other cars put in their places.



To attract attention to the show a big parade was staged just before the doors were opened. This led through the principal business streets and wound up at the Coliseum.

This shows the scheme of decoration that was adopted and makes plain the importance which the dealers place upon the need for attractive surroundings even for the sale of used cars.



Twelve-Cylinder National Revised

Detachable Head and "Hot Spot" in Intake Increase Flexibility and Accessibility

Larger Bore—Counterweighted Crankshaft

THE National Motor & Vehicle Corp., Indianapolis, has somewhat revised its twelve-cylinder model, though the changes are not radical in nature. The motor has been increased in bore from 2¾ to 2⅞ in., the stroke remaining 4¾ in.; a new intake system has been devised in which a "hot spot" assists in vaporizing low grade fuel; the motor now has a detachable cylinder head and a new counterweighted crankshaft; and the oiling system has been improved.

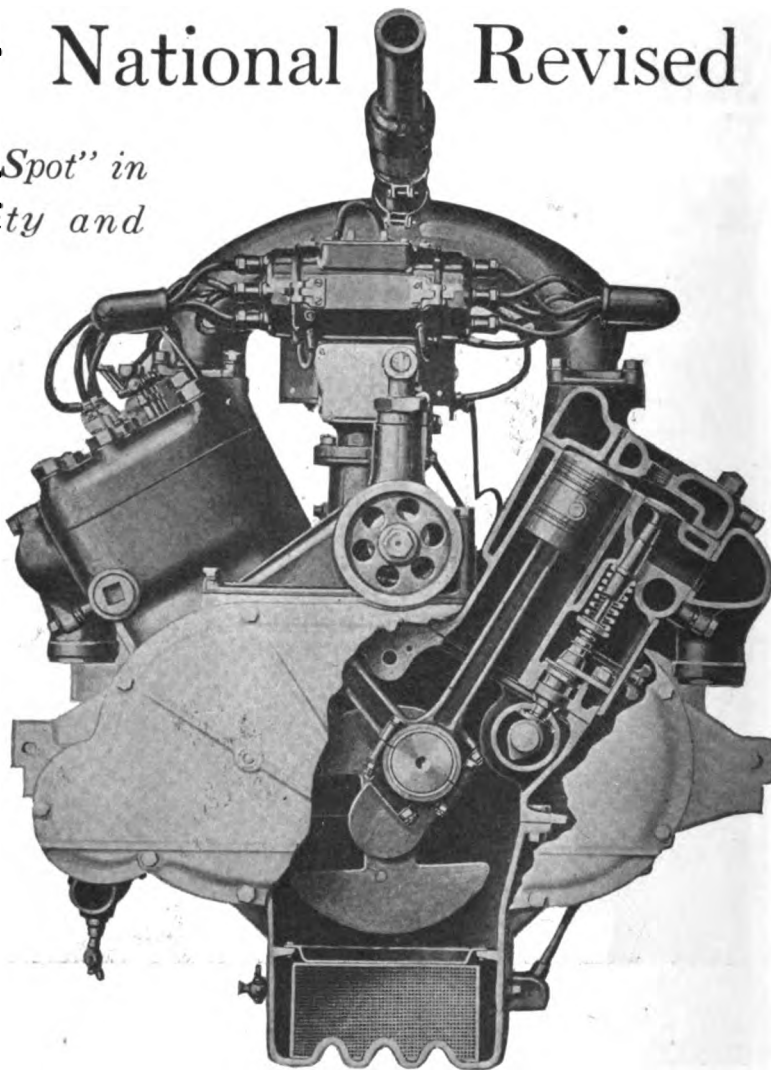
There are three principal body styles—a seven-passenger touring model, a four-passenger sport phaeton and a four-passenger roadster with cloverleaf seating. All three models sell for \$2,250. Two colors are optional, a delicate shade of pearl gray and a rich tint of blue.

Four-Passenger Most Popular

The four-passenger roadster is proving the most popular type and will constitute about two-fifths of the 1917 output. The four-passenger sport phaeton has a single front seat with a room cabinet behind it large enough for a considerable amount of baggage. The other two models have divided front seats and the roadster has but two doors.

Not the least important of the changes is the use of the detachable head, because the even size of combustion chamber which this makes possible is of conspicuous advantage in obtaining regular running at idling speeds.

This change has not affected the layout of the engine, the valves being still arranged L fashion and on the outside of



The "hot spot" in the intake is the small circular opening just to the right of the valve spring. The counterweighted crankshaft also is plainly visible

the V, leaving the alley clear for the accommodation of the starting motor, the carbureter and the ignition unit.

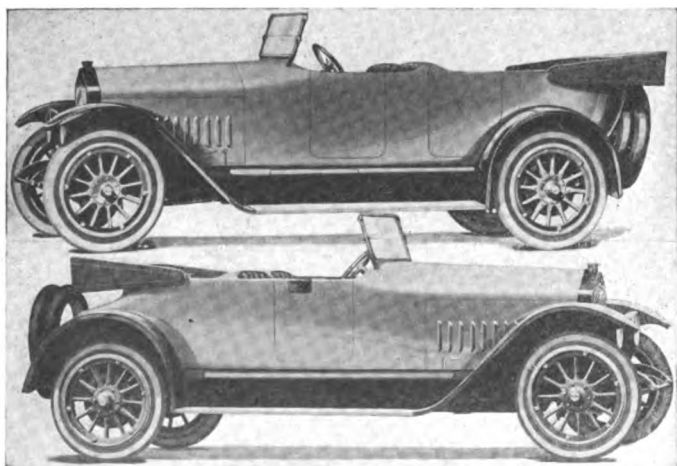
There are gear drives for the two camshafts and a silent chain for the ignition unit. The latter is new, being now a double header Delco outfit; it is mounted at the front of the cylinder alley and the shaft which operates it carries the fan pulley, thus bringing the belt high up

where it is well protected from dirt and oil.

The new intake system, designed to allow the engine to handle heavy grades of gasoline with satisfaction, divides into three parts. The manifold which connects the two blocks of cylinders is water jacketed, forming the water outlet from the cylinders. Its temperature is a fairly constant quantity, as the thermostat is in the pipe leading up to the radiator. Next come the two cored passages within the cylinders, these consisting of a cross passage leading from the inside to the outside of each block and a longitudinal passage from end to end of each block.

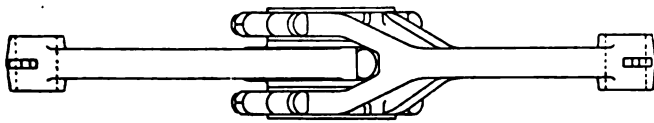
The hot spot has been applied at the point where the cross passage intersects the lengthways one. Referring to the cross sectional illustration of the engine, the circular passage beneath the valve pocket is the intake; the exhaust outlets, one of which appears in section, are not separated from the intake by any water space, so they maintain a good temperature for the whole length of the passage.

At the center, where the cross passage joins, a special exhaust pocket is cast beneath the intake as well as above

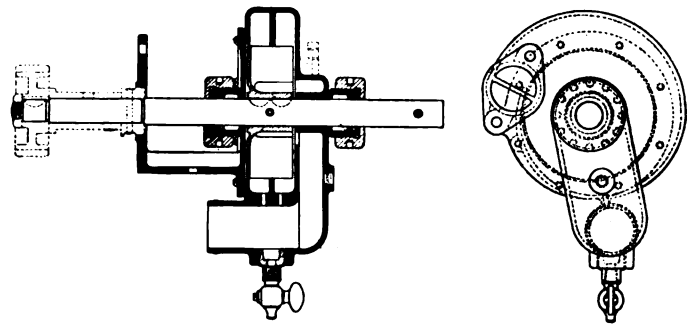


There are three principal body styles—a seven-passenger touring model and a four-passenger roadster being the popular models. All three sell for \$2,250

National Twelve Construction Features



Fork-end connecting-rod assembly which brings the sets of cylinders exactly opposite one another. Cast iron pistons are used



Water pump assembly. Note the dividing wall in the water space around the single impeller, thus forming a double pump

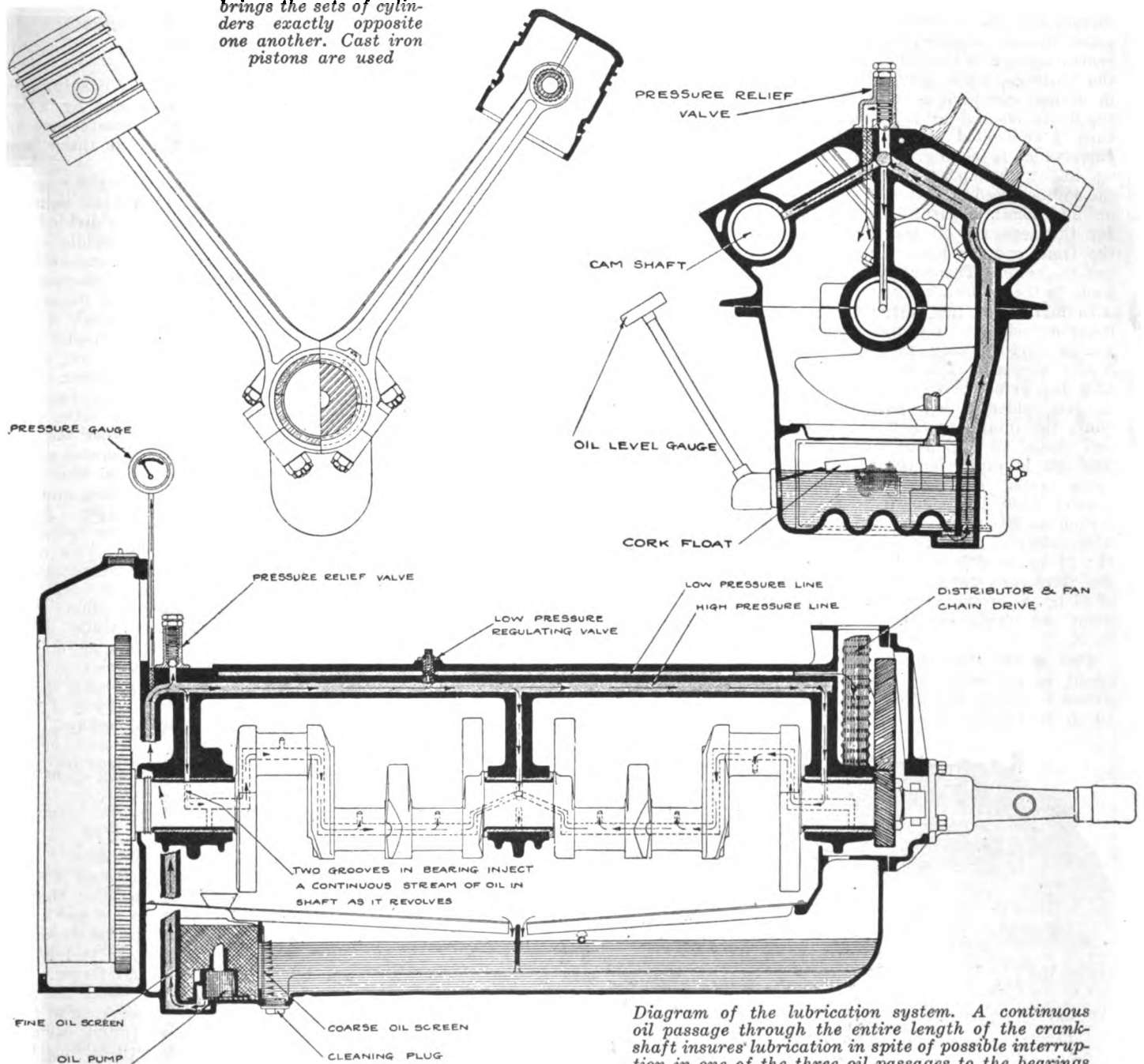


Diagram of the lubrication system. A continuous oil passage through the entire length of the crankshaft insures lubrication in spite of possible interruption in one of the three oil passages to the bearings

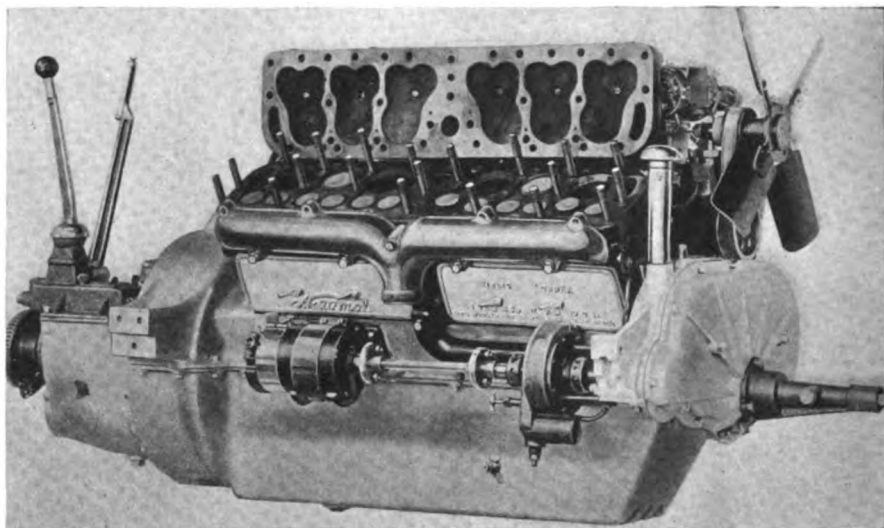
it. It is at the joint, where the direction of flow of the gas changes, that condensation is most likely to occur, and so this spot is kept hot enough to vaporize fuel thrown down there.

In the same illustration the nature of the counterweighted crank is indicated, but this does not show that only four balance masses are employed. Experiments with both four and six masses showed that the four were more satisfactory. There are two at the center and one at each end of the shaft, the shaft being, for the purpose of balancing, considered as two three throw cranks, each half being put in balance by its own pair of counterweights. In obtaining the masses the rotating portions of the connecting rod assemblies were considered as well as the crank pins.

Throughout the crankshaft there is an oil passage from end to end, and oil is fed to each of the three main bearings. Should the feed to either two of these cease by any improbable accident, the remaining one is thus able to supply all the bearings, while with all three feeds in normal condition a more than ample supply is insured to every part. Pressure is controlled by the usual release valve which is set to give about 10 lb. per sq. in. at 20 m.p.h. rising to 30 lb. as the engine speed increases. There is also an additional, adjustable release valve for the separate oil lead that goes to the front end for lubricating the gears and the chain. There are also individual leads to the camshaft bearings.

In laying out the new motor a good many experiments were made with valve timing and a very moderate setting finally adopted. The exhaust opens at 43½ deg. before bottom center and closes at just under 3 deg. past top center, while the intake opens 6 deg. past top and closes 42 deg. past bottom center. The lift is rapid, being from a mushroom tappet and the power peak is around 3000 r.p.m. with a maximum torque at 800 r.p.m. At 800 r.p.m. the horsepower is 32 and the torque 215 lb. ft.; 14 hp. is obtained at 400 r.p.m. and the curve runs smoothly to the maximum of 81 hp. at around 2900 r.p.m., at which point the torque is still as high as 76 lb. ft.

This means that the car has a wide speed range with especially favorable power to weight conditions from around 10 to 30 m.p.h. where the accelerative



The accessibility of the National Twelve engine has been greatly increased by the use of a detachable cylinder head

abilities are most noticeable. A maximum speed is not yet settled definitely but it is nearer to 70 than to 60 m.p.h. with a full-size touring body and may perhaps prove to be higher than 70. The standard gear ratio on high is 4 7/12 to 1.

With the counterweighted crank the need for excessively light reciprocating

one water intake and only one impeller. The pump casing is divided by a web running all around its circumference, and from each side of the case there is an outlet.

The two outlets are brought together at a single flange, each here being of semi-circular section, and a divided pipe carries the water to the middle of the right cylinder block. Here one-half discharges direct to that cylinder set, and the other passes through a passage in the cylinder foot, then through a short cross pipe and to the other cylinder block.

The thermostat valve does not control a secondary circulation system. It is so set that it cannot close absolutely, there being always a minute outlet to the radiator; this means that when the valve is closed the water pump operates against a strong resistance, and so there is a great deal of slip in the pump and very little water actually circulates. As the engine warms up the valve opens and allows an increased flow. This makes a very neat job of the thermostat and eliminates several pounds of metal that would be required for the piping of an alternative flow system, while it also is considered that the engine acquires the proper temperature more rapidly.

The chassis is identical with that of the previous model of Highway Twelve, the outstanding feature, perhaps, being the long and flat cantilever springs which National has now been using for nearly 4 years.

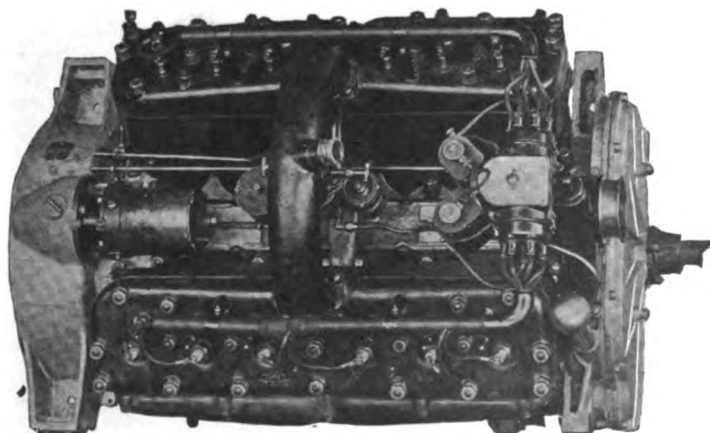
The New National 12

Price, open models.....	\$2,250
*Color	Optional
Make of motor	National
Number of cylinders.....	12
Shape	L-head
How cast	Blocks
Bore	2 3/4
Stroke	4 1/4
S. A. E. horsepower	29.6
Ignition	Delco
Starter	Bijur
Clutch	Cone
Wheelbase	128 in.
Tires	34 x 4 1/2
Type rear axle	Floating

*Options: Color, pearl gray or blue.

parts is not pronounced, so cast iron is used for the pistons. The connecting rod assembly comprises a forked and a plain rod, the cylinders thus being directly opposite each other and not staggered. Piston pins are tight in the pistons, which have four rings, three above and one below the pin.

For cooling, the water pump is divided into two sections, though there is only

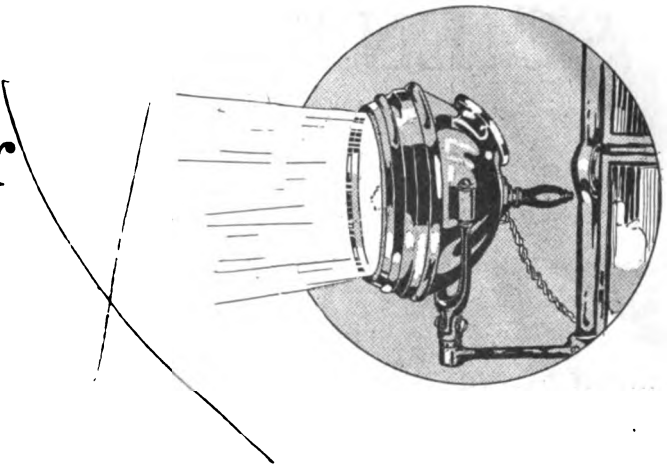


The alley between the blocks of cylinders is comparatively free. The valves are outside the V and hence are easily accessible

Here's a Speed Trap

WESTFIELD, N. Y., May 7—The Berger Garage Co. is sending out letters to the trade advising that there is a speed trap between Toledo and Cleveland, 20 miles west of Cleveland and 50 miles east of Elyria, in two adjoining towns, Ridgeville and Dover. The letter urges caution and states there are 6 motorcycle policemen working in these two towns. These are fining speeders and also arresting dealers driving from the factories with "in transit tags" instead of license plates.

How to Sell 100 Five-Dollar Spotlights IN A TOWN OF 10,000



THERE are 1,000 towns that can use this plan. Most of them cater also to a big rural population. The plan applies to towns above and below 10,000. There is hardly a limit to the size of town in which the plan may be used, varying the figures according to the size.

1—Get a list of car owners in your territory. You should have such a list already, but if you haven't, inquire of one of the many companies that furnish such lists.

2—Send to this list, in your whole county, letters about your spotlight. Two sample letters are shown at the bottom of this page.

3—Make personal calls on the list. Show the light. Show it downtown at night, when cars are parked. You can get light enough from a few dry cells, and can tell

the car owner to come in the next day and get it connected to his electric system. Make the sale and get the money while the lamp is lighted. If you are near the downtown section you may be able to let the buyer have the lamp at once, or you may get him to come in later and get it.

Every taxicab man, delivery wagon driver and motorist should have a spotlight. The Black & White taxis in New York have them, and find them handy in reading house numbers. Keep after your prospects and you should sell your 100 lamps.

Letter No. 1

Do you remember the road sign you had trouble reading the other night?

Do you remember how you rubbed and rubbed at it and finally had to climb out and go over to it?

And don't you remember many occasions when you would have liked to shoot a light in some direction not reached by your headlights?

This streak of light that shoots in any direction comes from the Blank spotlight. It is a small, handsome lamp that attaches to the side of your windshield, is extremely handy, and points in any direction.

You can put your headlights out and drop this down close to the front of your car when dimmed lights are necessary.

And in the day time the back of the lamp, fitted with a mirror, shows you what is coming behind you. It's a mirrorscope and lamp all in one.

The motorist who has one of these is immensely pleased with it. And they are so reasonable in price, only \$5. And we put them on for nothing (or for 75 cents, or 90 cents).

We have one mounted in our store. Come in and see it.

Yours truly,

Letter No. 2

If every wagon carried a lamp at night, and if every lamp were big enough to be seen for two blocks it would help some in motoring, wouldn't it?

But when you are coming to a cross roads it's hard to see what is outside the line of your headlights.

And there are always spots here and there that you wish you could see into.

Sometimes you want to read a house number, and getting out and running up the front porch isn't a convenient job, is it?

Neither is it nice to have to change a rear tire in the dark.

Light anywhere and everywhere, in any direction and for a long distance is furnished by the Blank spotlight. It shoots a beam of light like a regular searchlight. In fact, that's what it is.

In addition it is a mirrorscope. There is a mirror in the back of the lamp that shows you what's coming behind you. The lamp fastens to the side of the windshield and—quite important—costs only five dollars.

Come in and see the one we have in operation in our store.

Yours truly,

SCIENTIFIC CONSTRUCTION

GARAGES □ □ □ SHOWROOMS □ □ □ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

Twenty-Seven Car Garage With Shop, Showroom and Accessory Store

Editor Motor World: May I trouble you a little please. I have just bought a lot 60 x 180 ft. I wish to build a garage on same. This is an inside lot with buildings on both sides, but it runs through to the other street. I want nice showroom, office, stock and storeroom, ladies' rest room and all up-to-date.—B. F. Coleman, Kent Motor Car Co., Kent, Wash. The building will be one-story, concrete.

Answer—The plan shown on this page was drawn according to your specifications.

We have not placed the entrance exactly in the center of the building, but we believe you will find no objection to the location we have selected for it.

Information Regarding Erecting and Equipping Garage

Editor Motor World: This town has a population of about 400; there are many cars owned in the town and surrounding territory; at present we are 20 miles each way from a good garage. I own an old shop building situated directly on a country road which is a "trail."

I would like a plan which would permit use of the old material found in the shop building, which includes 20—2 x 12 x 24; 2—2 x 12 x 16; 20—2 x 8 x 24; 45—2 x 6 x 14; 16—2 x 8 x 24; 20—2 x 6 x 12; 100—2 x 6 x 10; about 13,000 board ft. 1 in. stuff, flooring, roofing, clapboards, etc.

If possible I wish to avoid posts on floor.

Would like the workshop cut off from the rest of the shop, so workers would be undisturbed, and so this part only need be heated in winter, with enough room to keep a few cars, not over four, probably, in live storage in winter time.

Would like main building with roof high enough to use for basketball in winter, if this can be done without too great expense—about 15 ft. high in the middle.

Is prepared roofing as cheap and as satisfactory as shingles?

What would constitute fair equipment?

Floor should be cement? How thick?

We have very little coarse gravel here; what proportions sand and cement?

Preferable method of heating?

About what cost completed?

You can readily see from the foregoing letter that the writer is willing to learn. Do your best for him.—Robert W. Muir, Hunter, N. D.

Answer—We have not found it feasible so far to give detailed information regarding materials to use, etc., dimensions, and that sort of thing, but have confined our efforts to drawing plans and fronts which show in a general way the most convenient layout.

As a result of this policy, we cannot give you an opinion on the suitability of the timber you mention, but would strongly advise you against building a garage which is not fireproof. Of course, you can cover your building with insurance, but you must remember that the insurance rates on a wooden garage are excessively high and also remember that the rate on the contents is also high. As a result, we do not believe that you would save anything by putting up a wood building.

Uninsurable Losses

In the second place, you cannot take out insurance which will prevent the loss which will result from your inability to do business till a new building is erected, nor can you take out insurance on the loss of prestige or against the prejudice which would naturally arise as a result of a fire. If you construct a garage of wood you are going against the best judgment of 999 garagemen out of 1000 all over the country and also against the advice of fire experts and insurance men.

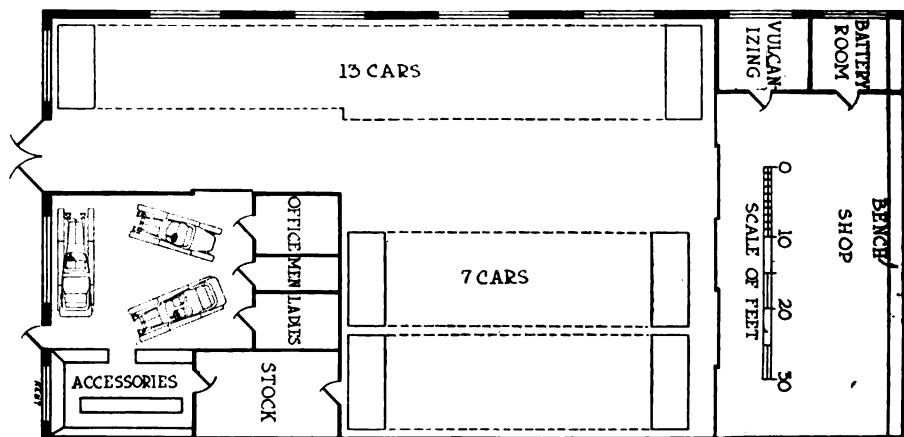
We suggest that you sell the material

you have on hand for whatever it will bring and build an entirely fireproof building. It will pay in the end.

In case you desire to construct your building of wood, however, we are quite sure that you can use some of the material you have on hand for a roof unsupported by posts, and in order to accomplish this, would suggest that you write to McKeown Brothers, Cottage Ave., Chicago, makers of the Lattis Truss roof. It is not considered extremely bad practice to use a wood roof, provided the rest of the garage is fireproof. Consequently, in any case you might find it advisable to use a wood roof, in which case, you could employ much of the material you have on hand.

Shingles are undesirable from a fire standpoint. There is nothing as dangerous as a shingle roof, as it offers an ideal means for catching sparks from other buildings. Probably the cheapest and most satisfactory roof for you would be a tar and gravel roof, but there are many prepared roofings, such as that made by the Barrett Mfg Co., New York City, which you might use.

Your equipment should consist of a curb pump and storage tank for gasoline, a portable air compressor for pumping up tires which may be driven from line shafting, a gas engine of possibly 5 hp. to drive the air compressor and the machine tools, a lathe, drill press, arbor press and emery wheel and in addition, a rather complete set of wrenches, taps, dies, charging outfit for storage batteries, oxy-acetylene welding and carbon burning outfit, electrical testing equipment, and so forth. Inasmuch as you must have electricity to charge your storage batteries, we are not sure but



Plan of building showing compact arrangement of showroom, accessory store and offices

that you would find it profitable to plan to have an engine drive an electric generator which would furnish light for the garage as well. You might also make plans to sell extra current to adjoining buildings. A complete outfit of this sort may be purchased at a rather nominal cost or you may buy your engine and your generator separately and couple them up yourself.

You should have the services of a real good garage manager and mechanic. Probably, you can combine the two in one man, in making him both garage manager and foreman of the shop. He should be allowed to select this equipment. If you attempt to start out, except in a small way, without such aid, you will surely come to grief.

It is impossible to go fully into the subject of garage building or garage arrangement in a letter, but we would suggest that you obtain all the back copies that you can and read these carefully.

Ramp Preferable to Elevator in Large Buildings

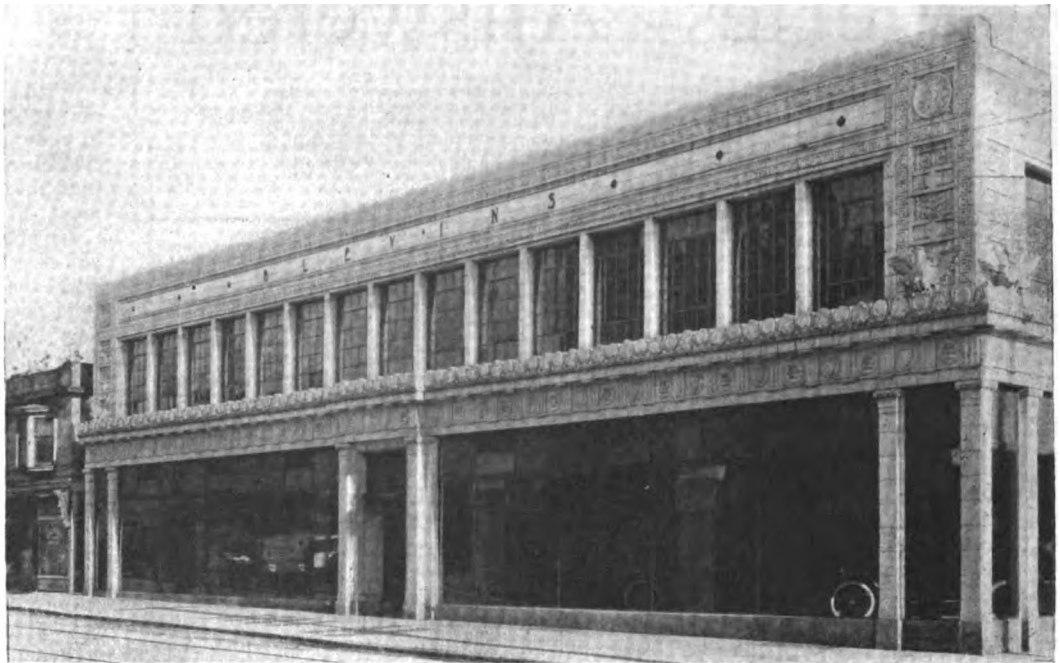
Editor Motor World: Understanding that you are in close touch with garage construction problems we take the liberty to ask for information that you might give.

The information desired by us would be relative to height of floors

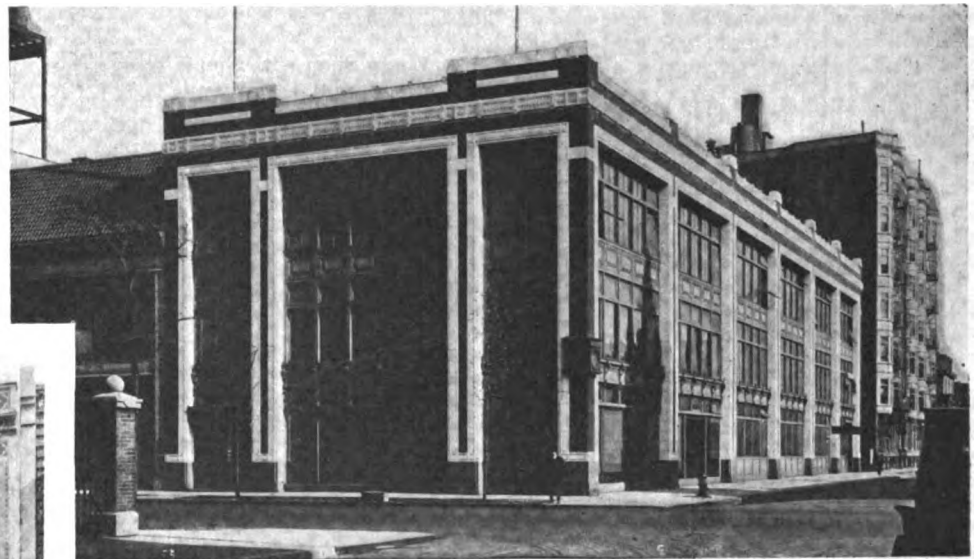


Entirely of cream matt glazed architectural terra cotta with ornament in bright falcence colors

Two Fine Terra Cotta Buildings



A delicately modeled façade of cream matt glazed architectural terra cotta



A three-story building trimmed with white matt glazed architectural terra cotta

as well as height of building, also your opinion as to fast elevator service in preference to inclines.—Leasing & Building Co., Cleveland.

Answer—A ramp is much more satisfactory than an elevator for a building this size. It provides a quicker means of getting cars in and out of the building. Even the fastest elevators are slow in comparison with the quick service a ramp can offer.

The elevator companies, themselves, admit that there is no advantage in installing an elevator provided the floor space is big enough to warrant a ramp, and this is so in your case.

As far as the question of upkeep is concerned, the ramp is way ahead of the elevator because the upkeep is nothing.

We should make the ceiling a minimum of 13 ft. The only advantage in

making it higher is that you will have better light in the center of the building.

Useful Information

A tin roof should be repainted as soon as the old paint begins to wear through. Delay means that rusting will take place, and soon extensive repairs as well as repainting will be necessary.

Brick or stone fronts which have become soiled may be cleaned with a sand blast; glazed terra cotta, with soap and water.

Wire glass is not only desirable because it does not shatter but because it is proof against failure due to intense heat; in other words, it is a protection against fire.

Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

How to Build Up Accessory and Repair Business

EDITOR Motor World: We have been operating a garage and repairshop in this town for 6 years. We are out of the center of town and while that is all right for the repairing of cars it doesn't sell many parts or accessories.

We have been trying to profit by your articles in the MOTOR WORLD and realize that we have been pretty poor merchants. We have been trained as machinists and are both good repairmen, but we are anxious to sell more supplies. One of our competitors sells tires 5 per cent above wholesale prices, so we can't do anything with tires.

He sells the car in this territory and maybe can afford to do it, but we cannot compete with his prices.

I am sending you a sketch of our garage and would like to have you give us an idea of how we can display our accessories in an attractive manner.

Any ideas about changing our building and making it more attractive and more practical will be greatly appreciated.—Subscriber.

Answer.—It is hard to give advice without knowing all the details. However, we believe the first step in solving your difficulty is for one of you to specialize on the repairshop work, and the other on the merchandising. As far as we can see, you are doing a little of both, each of you.

One Man a Salesman

The man who specializes on the merchandising should not only direct his efforts toward selling accessories but also selling repair work and even selling garage space, if you have any space that is unrented. The man who is the best salesman should get this job. You are splendidly equipped to do a good business in a town of this size and there is no reason why you should not succeed.

For the sake of argument, we will suppose that you will take charge of the merchandising and your brother does the repair work. First, your brother should put his shop in ship-shape condition; it should be thoroughly cleaned and made as attractive as possible.

It is impossible to do good work in a dirty shop.

In order to do good work you must have the right kind of an atmosphere.

Dirt fosters slovenly, careless work. Furthermore, if your shop is dirty you are likely to get dirt on the wearing parts newly assembled. You will waste time looking for things you should be able to lay your hands on instantly. You will lose time climbing over rubbish and in looking for parts and tools, which might be avoided if your place was scrupulously clean. Furthermore, owners coming into your shop will be impressed by its cleanliness.

Equip Shop with Small Tools

The next step for your brother, is to equip the shop with any small tools you may lack. Because of the fact that you have been operating a machine shop and foundry, and have been in the repair business for a long time, you undoubtedly have all, or nearly all, the equipment you require. But don't be penny-wise and pound-foolish. If you can do

better work and do work quicker by spending a few dollars or even a few hundred dollars on new equipment, we should advise it by all means.

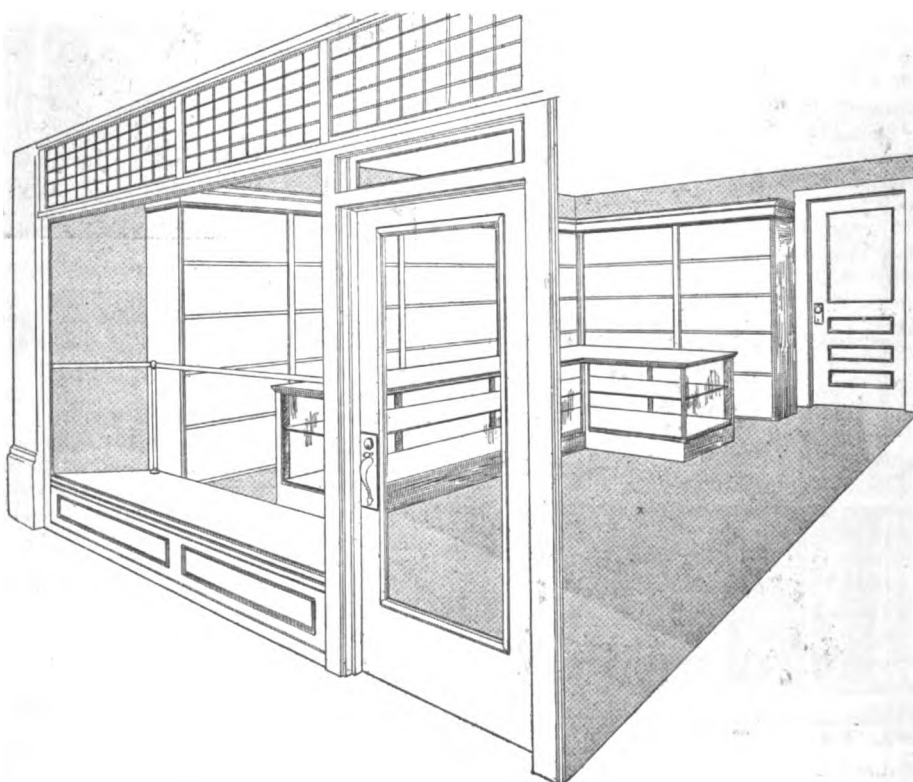
Talking Points

With the shop ship-shape, you then are able to go out and sell it to all the owners in your territory. The talking points are cleanliness, complete equipment, competent mechanics and conscientious treatment of customers.

If, after making these improvements, you find that you cannot compete in price with the other shops, raise your price. It is not hard to persuade an owner that it is worth while to pay 10 or 20 cents an hour more in order to have good work done, particularly, if he has had trouble with his last repair job.

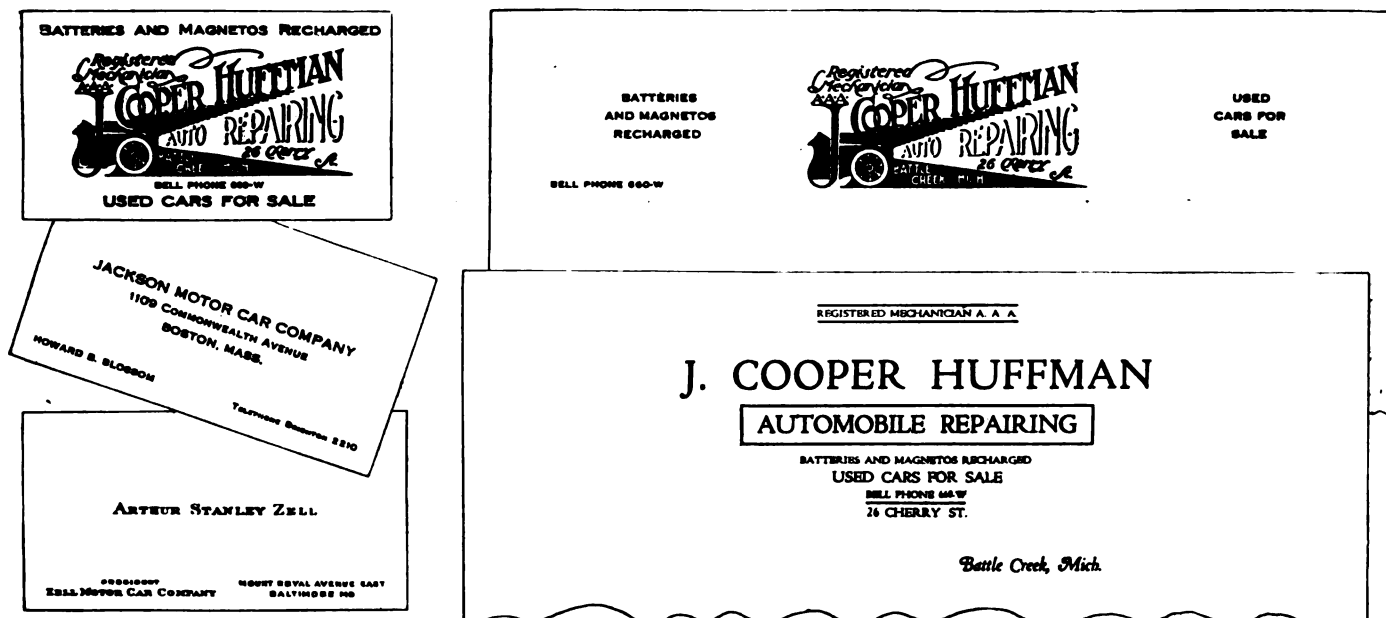
Be sure that you do the best repair work in town, and you can make the price whatever it must be.

When you have made all the improvements in the shop we have suggested, you should get out a circular letter and send it to all owners in your territory, calling attention to the fact that you have renovated your shop, that it now is a model of cleanliness, that you have added considerable equipment, and that as a result you are able to do even better work and quicker work than heretofore. Keep after them. Send a letter out every 2 weeks regarding repair work. You might also send a letter out suggesting overhauling. Every car should have a going over before summer touring. It is the same way in the fall; a car should be looked over before winter. We shall be glad to write these letters for you, if you will tell us just exactly what you want put in them; otherwise the letter we might write might not suit your idea at all due to local conditions.



Small store with shelves and showcases. The door at the rear opens into the shop

GOOD AND BAD LETTER HEADS AND CARDS



The objections to J. Cooper Huffman's card and letter head are the many styles of type and the lack of orderly arrangement. A suitable design is that shown in the lower right letter head. The business cards used by the Jackson Motor Car Co. and Arthur Stanley Zell are neat and attractive and are suggested as layouts well worth copying

The accessory store should be neat and inviting. You should have an attractive display in the windows and the goods should be neatly and attractively arranged on shelves and in showcases. Remember it is a good investment to have showcases. The first rule in merchandising is to show as much of your goods as possible. Have as much of your goods in sight as possible. The best method to follow is to arrange your stock on shelves. Arrange it neatly, yet so the customer can run his eye over it all, and as he does it, he is reminded of things he desires. The articles you desire to push, or those which require a little more inspection or are of a special nature, should be placed in the showcases and some particular article you desire to feature may be displayed in the window and it should be a full length plate glass window, too. Change the arrangement of articles in window and showcases often. A person becomes tired of looking at the same thing all the time.

Watch How Others Do It

Watch how the best dealers in your town display their goods. Study the methods used by your most successful grocer, most successful hardware man, most successful candy store man and so on. Do the same in larger towns surrounding yours. This is the best way to learn how to merchandise goods.

Do not make the mistake of trying to economize too much on your store. If it is necessary to spend \$500, spend it. Interest on this sum is only \$25 a year and surely an attractive store would be worth this amount. You cannot make money without spending it. At the same time, do not overdo it.

Do not cut accessory prices. The man down the street who sells tires 5 per cent above wholesale prices probably does not give good service. There is a false value some place. He cannot change the tires so it must be in the service that he gives. Probably he does not make fair adjustments. Find out. There is a reason.

Be Sure You Make a Profit

Don't sell any accessories unless you can sell them at a profit. Be sure you get your price. Tell your customers that you are not in business for the love of it but to make a living. Tell them that you are entitled to make a living and that the prices you charge are fair, and if anybody attempts to cut the price lower than you are selling the articles at, he must cut something else along with it. Possibly, the price-cutter does not give a money-back guarantee, in case any article is unsatisfactory. There is a nigger in the fence somewhere and you should be able to find it.

Try to have your stock as complete as possible but do not overbuy. You will meet many salesmen who will be so plausible with their arguments that it will be difficult to resist them, but do not let them sway you. Buy too little rather than too much.

Sell advertised goods.

Be up to date. If you see something new on the market which good judgment says your trade desires, get it immediately. But this does not mean that you should buy every freak thing that comes along.

If you have an article which will appeal to certain of your owners, send them a letter telling them about it. Send

your owners many letters. Try the methods that you use in selling cars on accessories. For this, you will require an office girl, just a typist—not a stenographer. She will pay, try her a few weeks and see!

Extreme courtesy should be the rule both in repairshop and accessory store. You should be deeply interested in your customers and show it. Keep careful track of your customers' wants so that when a man needs a new tire, for example, you can remind him of it. Maybe he has forgotten about it and this little thoughtfulness on your part may save driving home on a rim.

Be strictly honest and always keep your word.

Lighting Trouble Explained

Editor Motor World: Please print wiring diagram in your next issue of the Mercer 22-70. This car will have light when motor is idle but lights go out when motor is running.—Clemons & McMahon, Weldon, Ill.

Answer.—Your trouble may be a short-circuit caused by the stud which carries the clutch pedal release spring being screwed too far into the clutch housing so that this stud will touch the armature of the starter.

It is also possible that the battery is connected backwards or that there is a short-circuit in the armature or one of the brush holders.

Your difficulty is rather peculiar and we would suggest that you get in touch with the Schillo Company, Chicago, in case the suggestions we have given you do not help.

Repairshop Shortcuts

From The Motor World Roadman

(No. 1174) FORD CRANKCASE STAND

Seams and joint in the crankcase of the Ford become loosened, due to the action of the car, and must again be brazed together. This brazing is facilitated by the use of a welding stand. The base is an old rear wheel, supporting an upright that carries the rest for the crankcase. The front of the case is fastened by a clamp, and rear by an old universal flange. Both the rest and the flange are swiveled, so that the case may be turned over, or tipped up and down.—Swaney Motor Car Co., Fort Dodge, Iowa.

(No. 1175) INSPECTION LAMP REFLECTOR

Glare from the inspection lamp is as bad as too little light, and may be prevented by the use of the simple reflector shown. This reflector is shim brass, cut roughly pear-shaped, polished, and inserted between the guard and lamp. This reflector tends to concentrate the light on the work and keep it from the eyes of the mechanic.—Ernest C. Timmsen, 1520 Temple Street, Los Angeles, Cal.

(No. 1176) RADIATOR NECK WRENCH

The neck of the 1917 Chandler radiator is held in place by means of a bushing. Occasionally this bushing becomes loosened, or it is desired to take it off to remove the radiator neck. A wrench for tightening or removing the neck is shown. It is a piece of pipe, slotted to engage the two lugs on the inner side of the radiator bushing, and turned by a rod handle.—Frank Hoffman, Chandler Service Station, Toledo, Ohio.

(No. 1177) PARTS CLEANING

Parts may be readily cleaned by a gasoline spray or aspirator, actuated from the air pressure line. This spray comprises a short length of copper tubing, about $\frac{1}{4}$ in. in diameter, having a piece of $\frac{1}{16}$ in. brass tubing soldered into its side. The air line is connected to the larger tube, and the smaller tube is connected to the gasoline supply. When the air is turned on, a suction is created in the smaller tube, drawing gasoline from the can, and forcing it onto the part to be cleaned.—Geo. F. Reim, Cadillac Co. of Omaha, Omaha.

(No. 1178) PORTABLE TEST LAMP

This is a portable test lamp, used in conjunction with a 110-volt lighting circuit, for testing lighting and ignition circuits on the car. It consists of a wooden base, on which is mounted a porcelain socket carrying a 16-candle power lamp, connected to the lighting circuit as shown in the wiring diagram. The test points are connected to the binding post, and any metallic connection between the two causes the lamp to light. Hence, if a wire is O. K., the lamp will light, when the test points are placed on each end of the wire. If there is an open circuit, it will not light. Similarly, short circuits and grounds may be determined. By short circuiting the two binding posts, the lamp may be used for inspection work.—B. C. Manly, Universal Motor Service, Gallup, New Mexico.

(No. 1179) STEEL SHOP HORSE

This steel horse, or auxiliary jack, is used to hold up Fords, Maxwells, or other light cars, when removing the rear assembly. It is triangular in form, consisting of steel strips, secured to an angle iron base. The side strips are hot riveted to the angle iron pieces, and are bolted to the top cross-piece. Cross pieces, connecting the angle iron strips are not absolutely necessary, but make the horse much more durable.—C. R. Pierson, Salineville Auto Garage, Salineville, Ohio.

(No. 1180) PORTABLE CHASSIS TRUCK

Overhauling and painting are facilitated by the use of a chassis truck. The truck shown, in addition to being easy to construct, is durable, and permits the chassis to be moved in any direction. Due to the length of the front support, no adjustment is necessary for different cars.—P. H. Wells, Chevrolet Service Station, St. Louis, Mo.

(No. 1181) SOCKET WRENCH EXTENSION

This extension permits the heads of the common commercial socket wrenches to be used in conjunction with a bit brace wrench. A rectangular opening is filed in the upper socket ends, and a bit brace shank made to fit into the opening so formed. By this arrangement, a socket of any size may be used with one shank, and the change of wrenches is facilitated. One shank should be made up 12 in. long, and another 20 in. long, so that any of the common jobs may be handled. By the use of an additional piece, the shank may be used with the square end socket extensions, this piece serving as a union between the two shanks.—E. C. Timmsen, 1520 Temple Street, Los Angeles, Cal.

(No. 1182) SHOP PINCH BAR

This pinch bar may be used for a number of purposes, and often may be used to remove gears or flanges when no puller is at hand. It is merely an 18 in. length of $\frac{3}{8}$ in. cold rolled steel, forged flat at one end, and bent into a right angle wedge at the other end. Both ends are then case hardened to promote durability.—E. C. Timmsen, 1520 Temple Street, Los Angeles, Cal.

(No. 1183) REAR AXLE STAND

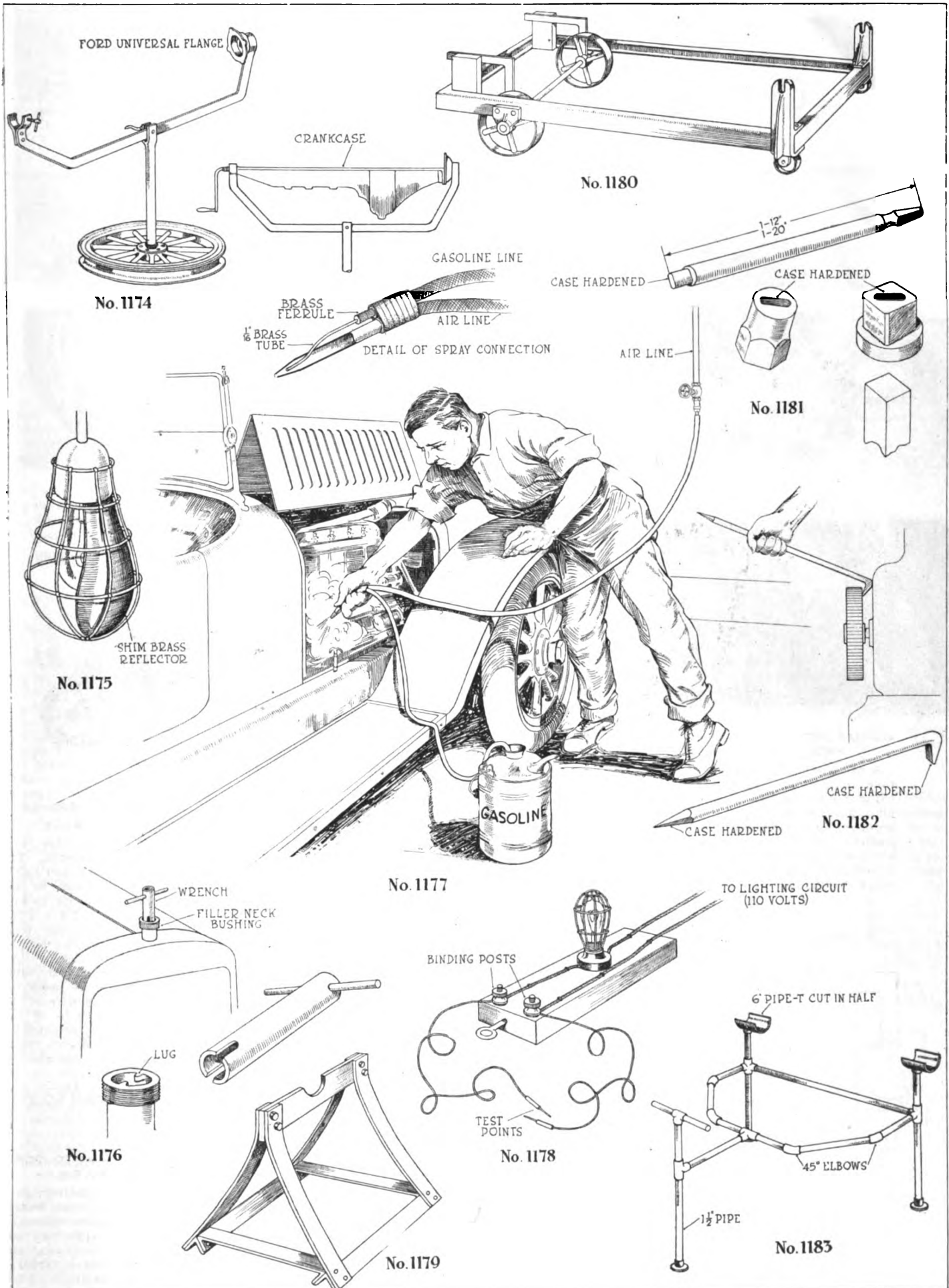
This rear axle stand is pipe fittings throughout. The framework is $1\frac{1}{2}$ in. pipe. The bases of the standards are pipe flanges, and the axle supports are $1\frac{1}{2}$ -6 in. pipe crosses, sawed in the middle, as illustrated. By the use of this stand, the axle may be completely assembled and readily adjusted at a height that permits efficient work.—Ernest Coffman, Ford Service, Louisville, Ky.

Olive Oil Protects Finish

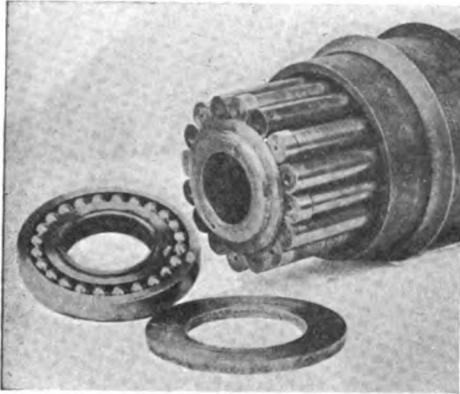
ST. LOUIS, May 5—J. C. Kardell, vice-president of the Kardell Motor Car Co., says that his company has solved the problem of driving cars from factory to salesroom without harm to the body finish. The Kardell company has had several Reo cars driven from Lansing, Mich., recently, and by applying a liberal coating of olive oil before starting and washing promptly on delivery, it is found that no part of the finish is damaged.

Any Crooks?

Frequently readers ask Motor World to give publicity to the work of check artists and other flim-flammers. Readers are invited to notify Motor World of any crooks of whom they may have knowledge. Showing up these men will help the other fellow.

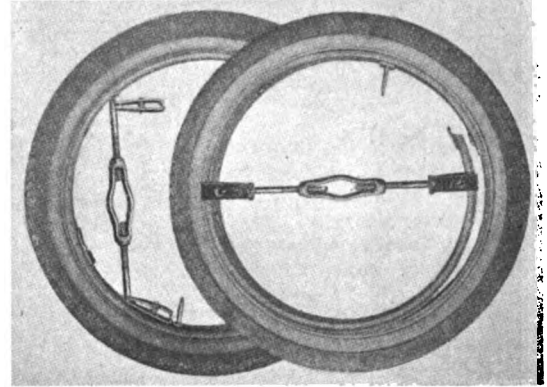


Accessories



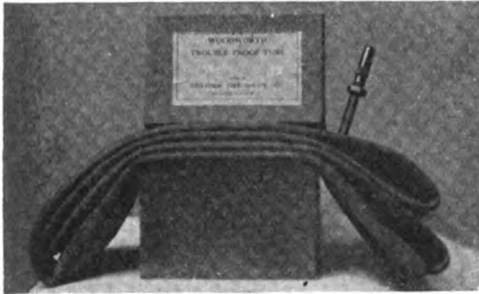
OILLESS ROLLER BEARING

No lubricant is required in this bearing, which has alternate rollers to take the load and spacer rollers in between, which are undercut except for a short length at each end in contact with the working rollers. Thrust is taken in a unique manner, the roller ends have slight depressions, which are slightly above the flange of the sleeve, and a ball thrust bearing fits over the end of the flange and the balls rotate themselves in the depressions in the rollers, thus giving a practically frictionless thrust.—D. M. Carr, Ft. Dearborn Hotel, Chicago.



BURRILL RIM TOOL

For split demountable rims. It expands or contracts the rim by a turnbuckle.—Burrill Tire Tool Co., 35 Commonwealth Avenue, Concord Junction, Mass.

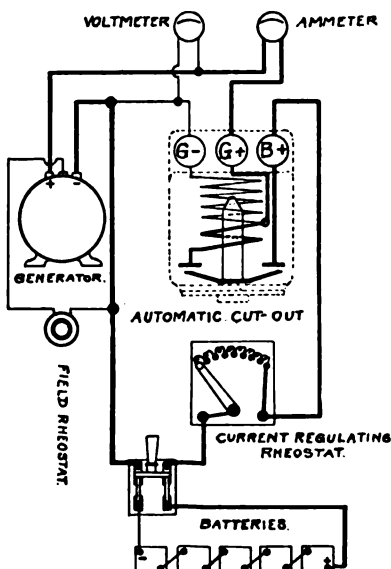


WOODWORTH TROUBLE-PROOF TUBE

A heavy weight red rubber tube of pure gum, antimony cured. It is made of several plies put together with the grain running in different directions. It is guaranteed against trouble for 1 year.—Woodworth Mfg. Co., Niagara Falls, N. Y.

SNOW ATTACHMENT FOR CARS

An extra set of wheels is supplied in the rear and runners take the place of the wheel front, with the result that the car can go any place a horse can go, it is said. It is designed for all makes of cars—Automobile Snow Attachment Co., West Ossipee, N. H.



HARTMAN AUTOMATIC CUT-OUT

For battery charging panels it automatically cuts in or connects the generator with the battery when the generator voltage is high enough to charge the battery properly and cuts it out when there is a reversal of current. It acts as a safety device in case the current supply should be interrupted, preventing the discharge of the battery. Made for all classes of work where a fixed generator voltage is used. Price, \$7.50.—Hartman Electrical Mfg. Co., Mansfield, Ohio.

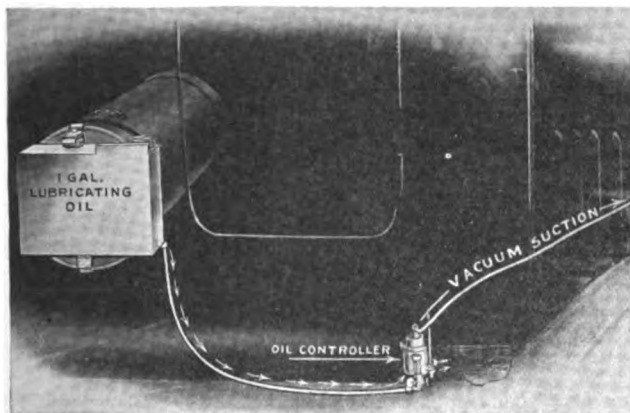
STARRETT VERNIER HEIGHT GAGE

A new height gage with improved attachments. The bar is 10 in. long and has a vernier which reads to .001 in. on measurements up to 8 in. The base is 2 1/4 x 1 in., hardened to give long wear and recessed in the bottom to give a better footing. An extension for the movable bar allows reverse measurements to be taken from the top or bottom side of the jaw. Another attachment permits measurements inside a frame of a jig and another measures the depth of recesses. Price, \$33.—L. S. Starrett Co., Athol, Mass.



PIMBLEY'S AUTO TOP RENEWER

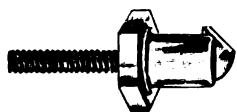
A dressing for leather, pantasote or mohair tops, waterproof and weatherproof and guaranteed not to rub off. Applied with a brush, and dries in 15 minutes. Price 50 cents, 85 cents, \$1.50.—Pimbley Paint & Glass Co., St. Joseph, Mo.



SIMPLEX OILER FOR FORDS

An auxiliary oiling supply tank from which oil is automatically fed to the engine, thus keeping the level in the crankcase practically constant. Oil flows by gravity to the crankcase whenever the level drops below the oil pipe opening into the crankcase,

except when the engine is running, when the suction of the engine automatically shuts off the supply. This is done by an oil controller which is connected to the intake. The purpose in having this device is to prevent waste of oil which would occur when the car was running because of a widely varying oil level.



CHURCH CURTAIN FASTENERS

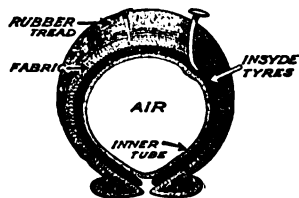
These curtain fasteners have two important features. First, the grommet is bowl shaped, and has a center shank, the edge being used to hold a convex spring washer after spreading with a punch set. The outside edge of the grommet is flanged, to prevent injury to the fabric. The eyelet thus applied tends to prevent tearing under almost any condition, and is readily applied, as the eyelet does not need alignment. Second, the trigger construction of the fastener holds the eyelet secure at all times, it is said, though it may be released by a slight pressure with the thumb or finger. The fasteners may be had either in white nickel, black japan on brass or in black japan on steel.—Automatic Carbuter Co., 1422 West Randolph St., Chicago.

NEW PITTSBURGH BRACKET

A new bracket gives the lamp a horizontal swing of 270 deg. and a vertical swing of 360 and is interchangeable for right or left drive. This permits the driver to throw the beam on the ground or as high in the air as desired, or he may swing it back for lighting any part of the car. It is used on the Pittsburgh Parabolite.—Pittsburgh Electric Specialties Co., Pittsburgh, Pa.

HARWARD

The single-piece piston ring with a joint which is carefully designed to prevent leakage. Another feature is the oil grooves cut in the ring, not only giving better lubrication but also adding to the flexibility of the ring. Price, \$1.05-\$1.60.—Harward Mfg. Co., St. Louis, Mo.



INSYDE TYRES

A strong casing which goes between the shoe and the inner tube, designed to reinforce the shoe and protect the tube so that punctures, blowouts and rim cuts will be eliminated. It is cemented to the shoe with ordinary rubber cement. Price, 3 in., \$3; 3½ in., \$4.75; 4 in., \$5.75; 4½ in., \$7.25; 5 in., \$9.—Automobile Accessories Co., Cincinnati.

EASYON CHAINS

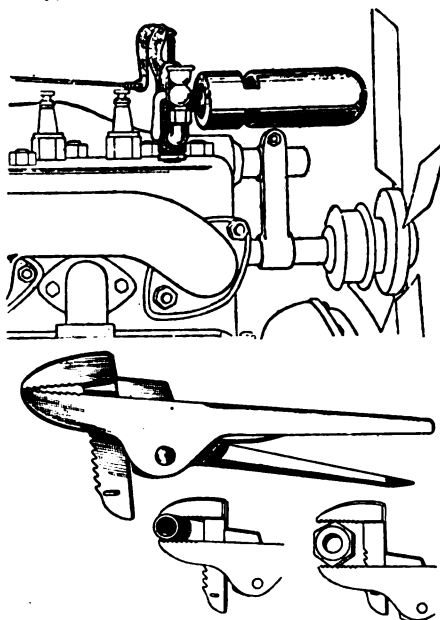
The 1917 chains, instead of being made of welded links, are of steel more than ¼ in. thick, rounded and perfectly smooth where they come in contact with the tire, but having thin edges to give traction. There are eight chains in a set, four for each rear wheel. Prices, \$3 to \$5.—Leather Tire Goods Co., Niagara Falls, N. Y.

TRANSPARENT WEATHER-STRIP

No Rain-in-the-Face is the name of this transparent weatherstrip. It is indestructible and requires no fastening, we are told. Price, 75 cents.—Akron Auto Garage Co., Akron, Ohio.

GAS-TITE RING

Being in continuous contact on its lower edge and outer face, it forms a tight joint, regardless of where, it is said. The lower ring has the continuous edge upward to prevent oil being drawn up on the suction stroke. The rings are individually cast. Price, 50 cents.—Bilt-Rite Specialty Co., Moberly, Mo.



BAILEY COMPRESSION WHISTLE

A compression whistle which is screwed in the priming cup hole, or if there are no priming cups, a priming spark plug may be used. It is not only a signal to warn pedestrians but acts as a thief alarm, since the whistle may be locked in the on position so that if the engine is started the whistle will blow continuously.—W. J. Bailey Co., Newark, N. J.

D. & H. COMBINATION WRENCH

A universal wrench for nuts or round stock, automatically adjustable to any size. D. & H. Mfg. Co., 61 Foote Street, New Haven, Conn.

CHICAGO FUSES

Union Fuses are furnished in display boxes of three different types, known as No. 1, No. 2 and No. 3, and containing respectively 100, 200 and 150 fuses. The boxes are divided into compartments for the various sizes of fuses.—Chicago Fuse Mfg. Co., 1014 W. Congress St., Chicago.

DIM-A-LIGHT DIFFUSING LENS

A headlight glass which prevents glare by diffusing the light. Price, up to 9 in., \$2.50 per pair; over 9 in., \$3.—Marcus Brothers, 866 North Tenth Street, Philadelphia.

C.B. ANTI-RATTLER

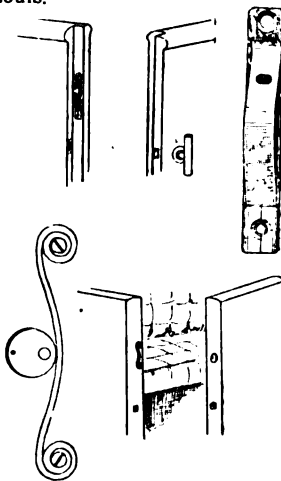
For cars with angle stops. Will stop rattle of doors or hoods. Made of clock spring steel. Price, 25 cents.—W. J. Bailey, Newark, N. J.

C.B. DOOR ANTI-RATTLER

For Fords and other cars not having wood angle stops. Attached in a minute with three screws. Price, 20 cents.—W. J. Bailey Co., Newark, N. J.

CUPPLES TIRES AND TUBES

Greater mileage and freedom from blowouts and punctures are claimed. The tube is extra heavy with two layers of fabric and the shoe is said to be made of the very best material, by hand. Casing prices, 30 x 3, \$12.75; 30 x 3½ rough tread, \$18.50; 34 x 4 rough tread, \$31.95. Corresponding tube prices, \$8.50, \$10.20 and \$17.—Cupples Co., St. Louis.



Don't Stop Progress

If new goods, new methods, new devices or anything else new seems good and likely to **STAY** it is better to investigate it carefully and fit it into your business than to fight against it and in the end be run over by it. You can't stop progress

SOME time ago the manufacturer of a liquid carbon remover, who had been extensively advertising his product in trade papers and other national mediums, came to MOTOR WORLD and said:

"This is the darndest situation I ever encountered. The garagemen won't stock my carbon remover because they say its sale cuts into their burning-out business. They say that if they sell liquid carbon remover they are educating car owners to remove their own carbon and that this will kill the burning out business. They say the carbon remover takes away some of their profits."

MOTOR WORLD was asked to investigate. It obtained from this manufacturer reports from its road salesmen from widely scattered sections of the United States. These reports bore out what the company had said. The garagemen would not handle the carbon remover because, they said, it hurt their burning-out business.

Whenever the burning-out price was mentioned it was 50 cents per cylinder.

Occasionally a garageman said the carbon remover was no good, but the company presents tests to refute this. MOTOR WORLD, however, does not pretend to pass judgment on the merits of the product. And there was one garageman who was taking up with the carbon remover because he said burning-out injured the cylinders.

Thus far the situation was this: The garagemen claimed selling the carbon remover robbed them of their 50 cents per cylinder for burning.

What Does It Cost?

MOTOR WORLD then went further in this investigation. It endeavored to determine whether the garageman makes more by burning-out or by selling the remover.

It selected a typical town of medium size, picked a garageman and dealer who is an expert on costs and asked him what it cost to burn out cylinders by the oxygen process and how his burning-out profit compared with the profit in selling the remover.

This man said his cost system showed him that the average cost per cylinder for burning out is 75 cents and that he does not care for any of this work at less than \$1 per cylinder. He says he finds a greater profit all around in selling the remover and that he has quit using his oxygen apparatus.

Now, this does not prove that all

garagemen are losing money at 50 cents per cylinder, but it does indicate that many of them are not certain of just what it costs to burn out carbon. MOTOR WORLD knows of many garagemen who do not know what various operations in their business cost them.

Know Your Costs

Before any garageman declares he is making money burning-out at 50 cents per cylinder he should be sure, just the same as he should be sure he is making money when he charges customers 75 cents an hour for labor. If the garageman is making more per burn-out than he could by selling a can of remover he should stick to his burning-out, perhaps, but he should **KNOW**.

MOTOR WORLD does not believe most garagemen are making as much as they think they are when they charge only 50 cents per cylinder for burning-out.

And now comes a further phase of the situation. There are several facts. One is that the carbon remover seems to be here to stay. Another is that it is being extensively advertised among car owners and the car owner is taking up with it just as the human race has always taken up with new inventions and processes that cheapen and quicken work.

The typewriter, the adding machine, the telephone, the cotton gin, the printing press, the multiple-spindle drill, automatic machines of many kinds, the many inventions that have saved labor and cost have all been welcomed by the world.

If carbon removing compounds are good they will be similarly welcomed, and if they are better than burning-out from the car owner's standpoint the car owner is going to want them and is going to buy them—somewhere.

Forcing Trade Away

If the car owner wants these goods, is or is not the garageman mistaken in trying to fight the remover and keep it off the market? Is he not forcing other lines, such as the hardware store or the drug store, to handle goods that ought to be handled in the garage?

It is a fact that this carbon remover maker is having better success with the hardware trade than he is with the garage trade, which seems to indicate that if the garageman won't stock the goods the hardware man will.

Now, if these goods **ARE GOING TO BE SOLD** and **ARE IN DEMAND**, isn't it better business on the part of the

garageman to get on the band-wagon of progress and make these goods fit into his business than to fight for the privilege of being behind the times?

This Is a Great Principle

And this isn't especially a plea for somebody's carbon remover. It is MOTOR WORLD's assertion of a great principle, which is that it is foolish to get in the way of progress. It is like trying to stop the Twentieth Century.

This big principle of progress was again illustrated in the case of a manufacturer of small vulcanizers. Garagemen refused to stock them because, they said, it hurt their vulcanizing business. But there was created a demand for these articles and **THEY ARE BEING SOLD**.

The safety razor was fought by the barbers and no barber will sell a safety razor or sharpen the blades. But safety razors **ARE BEING SOLD** by the million and the druggist is making the profit.

Workmen broke up cotton gins because, they said, it would throw them out of work. To-day we laugh at these workmen for **STANDING IN THE PATH OF PROGRESS**.

Old, staid business houses have been known to refuse to advertise and bring their stores up to date, and they have been passed on the path of progress.

Can't Stop Progress

And so it is all through the history of the world. Things move. Nothing can stop progress. The man who stands in the way of it is trying to stop a locomotive with his bare hands.

Wherefore, garagemen, repairmen and dealers, will your annual burning-out business bring you a greater profit than the sale of carbon remover? Will your annual vulcanizing profit be more than what you could make on vulcanizers and supplies?

Are you safe in opposing any of the new things that come—and seem to come to stay—in this rapidly progressing industry?

One of the first things to be done is **KNOW YOUR COSTS AND PROFITS** and make sure where your welfare lies. The big thing to bear in mind is **NOT TO TRY TO BLOCK THE PROGRESS OF THE WORLD** just because it doesn't happen to fit in with the ideas you may have held on certain subjects.

Don't let Progress go by you. Keep up with it.

Accounting *and Business* System

Questions and Answers about Motor World's Simplified System of Accounting

New Column Rulings Explained

System Editor—I am just installing your Accounting System, but there are some points that I do not understand.

In your descriptive book of instructions I notice that on your Supplement Form 2 Expense Accounts you have two column headings short as compared with the loose leaf in the regular System book, namely:

In the book you have on the debit side a column under heading "Jobbers, Mfrs., & Other Accounts Paid Off," and on the credit side you have a column under heading "Payable To Jobbers, Mfrs. & Others," while in the Supplement Form 2 these headings are not included.

Will you kindly tell me how these columns are used and give me a sample entry?

Also, in depositing a sum of money by cash for an agency contract would I debit the amount under General Dept. and credit under All Cash Paid, or debit under Car Sales Dept. and credit under All Cash Paid?—Fors Motor Co., Faribault, Minn

Answer—The book of instructions was printed to cover the first forms that were used in the system. In these forms your Accounts Payable were recorded on the Debit and Credit side under a column headed All Other Accounts, in which were included such items as Cash Discount Taken, Customers' Prepaid Deposits, and all other accounts that were not covered by the heading of Form 2.

Later on, in order to make accounting easier and especially in order to keep accurate and quick record of accounts that you owe to jobbers, manufacturers, and others, we gave these accounts a separate column on the Debit and Credit side of Form 2.

For example, we will assume that you have bought a bill of goods from the A-B company for \$100 and that the goods have been received and checked up O. K. with the invoice.

You make an entry on Form 2 crediting the A-B company under the column headed Payable to Jobbers, Manufacturers and Others and you debit this amount under Stock account to the particular kind of stock that this invoice covers.

Later on, we will say next month, you wish to pay this account, or we will assume that you wish to pay one-half of it. You will debit under the column headed Jobbers, Manufacturers and Others, Accounts Paid Off \$50, and under your All Cash Paid column you will credit a like amount.

Now you have a credit in the previous months of \$100 to the A-B company and by this entry you have a debit to the same account. Subtracting one from the

other, you find that your Accounts Payable amount to \$50, which is one-half of the bill that you owe the A-B company. By this way you can always know the exact amount quickly, that you owe to Jobbers, Manufacturers or Others, for goods or supplies that you have purchased and whose invoices are still unpaid.

In answer to your second inquiry, we will assume that you have deposited \$250 with your manufacturer or with your distributor to cover your sales agent's contract. You will draw your check on Form 2, entering the \$250 under the All Cash Paid column and on the Debit side of Form 2 under All Other Accounts, you would debit manufacturer's Deposit Account, \$250. This you will carry on your books and show on your statements as one of your Assets similar to Cash in Bank or your Accounts Receivable due from customers.

If you will refer to page 32 of the System Pamphlet, you will notice such an account listed under the current assets amounting to \$500 in the statements of Assets and Liabilities as shown there.

Entering Cash Discount on Bills

System Editor—We have recently installed your Simplified System of Accounting, and would like you to explain why Form 2 has a column for discounting bills and the regular ledger has not. You will notice that there is no place for a cash discount to be entered when a bill is paid.

Please inform us at once if there is a mistake in the printing of our ledger or if there is another place for such a discount.

Also, please inform us where the Parts and Accessories Account is to be placed—in the Expense Account?—Horton's Garage, Carrollton, Ga.

Answer—When you discount your Bills Payable you would enter the discount under the All Other Accounts column on the Credit side of Form 2 when you draw your check.

For example, if you were paying a bill of \$100 on which there was a discount of 2 per cent, you would debit the All Other Accounts column \$100, charging

If there is anything you don't understand ask us about it. We are glad to answer questions.

an account called Accounts Payable, and on the credit side you would enter under your Cash Paid column \$98, giving the number of your check; in the All Other Accounts column on the credit side, you would enter \$2, crediting this to an account called Cash Discount earned.

On Form 2 on the Debit side is an account column headed Parts and Accessories department under the general head of Expense. Whenever you incur any expense in this department, the item is listed in this column, giving the particular expense name to it for which it was incurred. We suggest that you send us one of your sheets of Forms 1 and 2, but we can hardly see how it could have been improperly printed.

Accounting Interest on Lease Deposit

System Editor: We have deposited \$400 as security for the fulfillment of our lease. On this we get 5 per cent interest semi-annually. How do we enter this? How is the interest to be entered?

Answer—The \$400, of course, would be charged to your Asset account, which may be called the profit on lease. This may be considered in the way of a loan or as an investment and the interest earned from this department we would credit on Form 1 under Miscellaneous Income, showing it to be interest earned on deposit.

Where to Carry Accounts Payable

System Editor: In your advertisement you mention Income, Expense and Accounts Receivable. Where do you carry accounts payable? Also, this is a corporation, where would you carry these accounts? It looks as if there was a lot of posting to do.—Townsend & Metcalf, Reedsburg, Wis.

Answer—The control over Accounts Payable is carried on Form 2 and if you carry a large number of these accounts you would treat them in the same manner as Accounts Receivable, recognizing the fact, of course, that Accounts Payable are credit accounts and your Receivables are debit accounts, which are controlled from Form 1.

Your corporation accounts are carried in the back of the binder under the heading of Assets or Liabilities, whichever they may be, which is illustrated in the system pamphlet.

Editorial Observation

The Country's Principal Business

WHEN the great war broke over Europe the cry went up "Business as Usual"; banks, commercial institutions and industrial plants strained every fiber to keep the trade of the country moving in a steady stream.

But before long it became apparent that business could not go on as usual; that despite all efforts in this direction business in certain fields lagged; that the great draft of men for the armies and the navy—during the first year of the war 13 per cent of the population of the United Kingdom was drawn immediately into the conflict—had curtailed production.

And then the great truth was born in the minds of the King's subjects—that while the war lasts it must be the principal business of the allies.

If this is true across the water, it must also be true at home in the United States. While the war lasts—and it is reported that the government is preparing for 18 months of it, perhaps more—it must be the principal business of the country.

Just now, perhaps, the most important thing is the seven billion dollar bond issue with which the government will set in motion the wheels of war.

This is a tremendous sum. Part of it is to be used in lending aid to our allies and part to clothing and feeding and equipping our own army. It is estimated that it will cost the United States 2 billion dollars a year to carry on the war. This, too, is a tremendous sum. But if it is analyzed, it is not so tremendous after all.

The population of the United States is about 105,-

000,000, counting men, women and children. Divide the \$2,000,000,000 equally among these and this gives a per capita tax of only a little over \$19. This means that every inhabitant of the United States must pay every year the war goes on a tax of \$19.

Some of us who are able will have to carry the burden of those who are unable to carry it. We will have to help the millions of poor and the millions without income. And we must do it freely, gladly. We

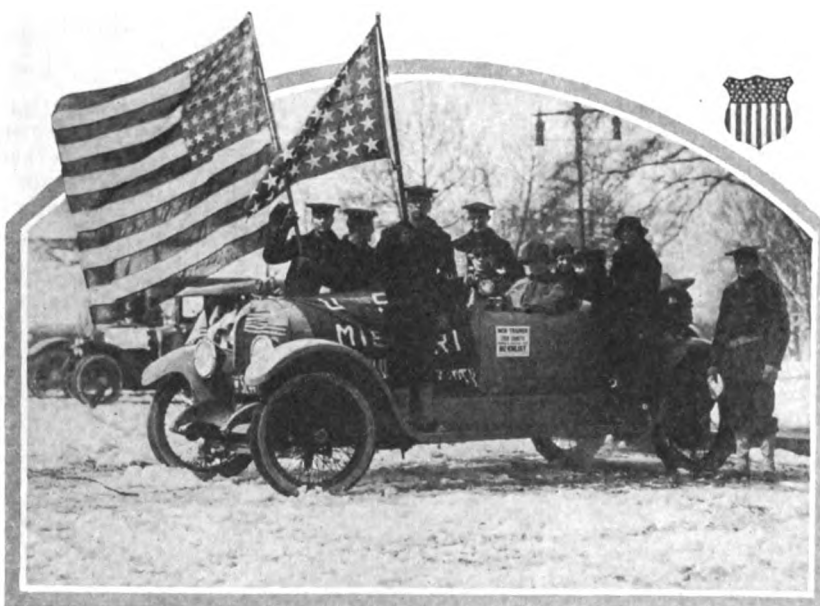
must do it because we are fighting our own battle; we are fighting for a world democracy; we are fighting for the freedom of the seas, for the freedom of commerce and for broader personal liberties in every nation in the world. It is a fight of democracy against autocracy. Every liberty-loving citizen cannot afford not to assist.

One of the first things we can do is to subscribe for our share of this \$7,-000,000,000 bond

issue. These bonds are the government's "promise to pay." The government needs money to carry on the war. It is asking every citizen to lend some of his idle funds. And it is giving a secured promissory note to return that money with interest.

The bonds are to be issued in various amounts. The largest will be \$1,000 and it is likely that there will be a big issue of bonds of some smaller amount such as \$100 or \$50 or \$25.

This makes it plain that everybody can do his bit. Even if the bonds are issued only for larger amounts it is still possible for those with moderate incomes to buy them. Many of the banks have arranged to sell bonds on the installment plan; even commercial and



The motor car is daily assuming greater importance in war work. This is a movable recruiting station in Philadelphia

industrial concerns are doing this, too, so that their employees can help the government.

The bonds will bear interest of $3\frac{1}{2}$ per cent. This may seem low, but there are few savings banks which give more. Furthermore, it must be remembered that this is an investment that is tax free.

How are we to buy these bonds? We are to take our idle funds, funds that lie in savings banks, that we have in an old sock or in the china dog on the

mantelpiece and put them to work for the government. Money in the savings banks is not doing the government any direct good; invested in government bonds it will do the owner exactly as much good as it will in the bank, and will extend a helping hand to our government.

But best of all, it will let the buyer of the bond hold up his head and know in his heart that he has done his bit. Buy a bond, now!

Owner Is Good Salesman

Editor Motor World: The April 11 issue of Motor World containing the first of the Used Car Price Records has been received and examined most carefully.

I like your Used-Car Price Record and am arranging to have it placed at the disposal of my salesmen.

I have subscribed for a number of years to the National Used-Car Market Report, which has been of great value to me, but I believe that Motor World with the weekly record will be of even still greater advantage.

As you know, the man coming into a salesroom to buy an automobile, particularly if he has one to "trade in," is generally a successful man, is generally a good business man and about one hundred and one times out of every hundred has an exalted idea of the value of his old car and is two to one a better salesman than the man that is trying to sell him the new automobile.

I have sat at my desk and watched a duel between the man trying to sell a used car and the man trying to sell the new car and, believe me, when the new car salesman flashes a market report showing that his old car, which he thinks is worth \$1,000, sold in Chicago and Minneapolis and New Orleans for \$350 or \$400, he wilts, and there is nothing else in the world that will make him wilt any quicker.

You are along the right lines and I thank you for the assistance you are going to give me and my brother dealers and distributors.—W. W. Barnett, Denver.

Exerts Big Influence

Editor Motor World: In my opinion a paper like Motor World, with the influence it exerts on dealers, garagemen, repairmen, helpers and others who read your articles on how to improve conditions generally in their places of business, is a wonderful educator. Anyone who reads it regularly will find many good ideas, will have a better understanding of what to do and to expect in the future, and is bound to be more successful than if he had no such medium.

As I see the used-car problem, its solution depends to a very great extent on the condition of the cars themselves, and I believe your efforts to bring dealers and repairmen closer together will have a very good effect.

The Repairshop Shortcuts are a great help to the repairman. I have gained

Letters From MOTOR WORLD Readers

many valuable ideas from this department.

In short I appreciate Motor World more than any other paper I have ever read and I wish for it a most successful future.—W. B. Selmon, Cleveland, Ohio.

Correcting a Report

Editor Motor World: Some reports have reached us that an understanding exists that the Milwaukee factory of the Cutler-Hammer Mfg. Co. has been taken over entirely by the Navy Department of the United States, and that in consequence the production of the usual commercial goods will be obstructed. The following explanation shows that better production of these goods has been insured. The condition in the Milwaukee plant at the present time is that out of some 2000 people approximately 400 shop men are enlisted in the Naval Coast Defense Reserve, and some 40 in the testing room, engineering department and office force. There has been absolutely no interference with the progress of work in the shop by the navy officials, nor is any anticipated, since this number of men would be ample to meet even emergency requirements of the navy.—Cutler-Hammer Mfg. Co., Milwaukee.

You Are Right Motor World Apologizes

Editor Motor World: The writer notes in the April 11 number of the Motor World you give Mr. F. J. Bennett of Keene, N. H., the credit for first suggesting the idea of publishing a weekly Used-Car Record in the Motor World.

We are wondering if you have not made a mistake in the name of the man who had the conversation with your representative.

The writer had exactly such a con-

versation at the Buick Booth in the Boston Automobile Show with one of your staff.

Of course, Mr. Bennett may also have had such a conversation, but incidents of the reported conversation are identically the same as that held with the writer; we thought a confusion of names might have occurred.

The writer is proprietor of Smith Auto Sales Co., Lebanon, N. H., agent for Buick, Hudson and Chalmers. He was introduced to your representative by Mr. Joslyn of Greenfield, Mass.—Smith Auto Sales Co., (Dr.) F. A. Smith, Lebanon, N. H.

Used Car Price Record

Editor Motor World: With a great deal of pleasure have I noticed the new service which appeared recently in Motor World for the dealer who is confronted with the used car problem.

If dealers will frequently consult the MOTOR WORLD used car sales report and are willing to profit therefrom there should be no reasonable excuse for allowing amounts a great deal larger for used cars taken in as part payment on a new car than the used car can be resold for.

The only suggestion I could make that would be of further value to us dealers would be reports on older models than have been shown so far. There are a great many cars offered to us which are older than 1912 models. The writer's personal opinion is that such cars are usually not worth more for resale than junk and that is, in my opinion, all that should be allowed for them.—Jacob Friedman, President, Iowa Retail Auto Dealers' Assn., Dyersville, Ia.

Want Trucks for Tobacco

LOUISVILLE, May 4—Tobacco men in central Kentucky plan to use trucks almost exclusively within a year or two for hauling the loose leaf into Lexington. It is estimated about 42,000,000 lb. were hauled this season. At present only a small part is delivered by motor trucks. A much larger crop is expected next season and a marked increase in the number of commercial vehicles used. Representatives of several big commercial vehicle companies have been in the Blue Grass section recently conferring with the big tobacco growers with the view of installing trucks to haul the leaf to market.

The RETAIL NEWS

COAST

The Auto Tire Co., San Diego, has opened a branch store in the Imperial Valley. The branch is being operated under the name of the Auto Tire Co. of El Centro.

Horace B. Day, San Diego, Cal., has re-entered the motor car industry and formed a partnership with Wm. B. Conniry. The firm is to be known as the Horace B. Day Co., and is located temporarily at the corner of First and C Streets. The new firm will handle the Inter-State line and operate a general garage business.

The Chevrolet Motor Co. of California, Oakland, Cal., is erecting an addition to the California plant which will give the Chevrolet an output of 100 cars per day. Ground has also been broken for a new building which is to house the executive offices of the company.

The C. H. S. Garage, Portland, Ore., owned by Fred W. Houghton, Roy Crawford, and Joe Snodgrass, mechanics, has recently taken over the Frank C. Riggs Garage at Twenty-third and Washington Streets. The new owners plan extensive improvements in the garage, and one of the features will be a clubroom for the chauffeurs of owners who store their cars in the garage.

E. J. Secord and Charles V. McEwer, Portland, Ore., have recently established an accessory salesroom at Third and Alder Streets, in the Panama Building.

Harmon & Wilson, owners of the Auto Machine Works, Motor Building, Tacoma, report that increased pressure of work has necessitated enlarging the force. Shop has been opened but five weeks in its new location.

Isaac R. Tower, Marshfield, Ore., has recently taken over an agency of the Republic truck in that section.

W. M. Thompson, formerly secretary of the Manley-Thompson Brothers Co., Tacoma Ford dealer, has sold his interest in the concern to Harry B. Manley and R. B. Thompson, the other partners. Manley will continue as president, and R. B. Thompson will become secretary-treasurer. W. M. Thompson will engage in motor car accessories at 1212 Tacoma Avenue, Tacoma.

M. N. Gallagher, formerly sales manager of the J. Mann Motor Co., Studebaker agents, and W. E. Powell, formerly of Kallispell, Mont., have been added to the sales force of the Overland-Pacific branch in Spokane, Wash.

Frederick B. Huffman, Spokane, Wash., has purchased an interest in the Brewer Motor Car Co., Saxon dealer, and will become secretary.

H. H. Goodman has purchased the Richmond Garage and the Point Lobos Garage on upper Geary Street, San Francisco.

The Twenty-third Avenue Garage, Oakland, is now operated by Boyer Brothers, who were formerly connected with the San Francisco Overland agency.

The Chabot Garage on East Fourteenth Street, Oakland, has added a vulcanizing plant.

The Mathewson Motor Co., San Francisco, has secured the agency and contracted for 800 Maxfer truck makers.

The Chicago Pneumatic Tool Co., 512 Golden Gate Avenue, San Francisco, has appointed the following firms as Little Giant dealers on the Coast: Granger & De Harte, San Jose; L. L. Gilcrease Co., Reno; Dan's Garage, Oakland, and Seely-Titlow Co., Inc., Arcata, Cal.

The Western Permalite Distributors, Inc., have opened headquarters in the Hearst Building, San Francisco, to distribute Permalite batteries on the Pacific Coast.

The O. K. Garage, 2215 East Fifteenth Street, Oakland, has been purchased by the firm of Rasmussen & Thompson.

The Reliance Automobile Co., 1529 Van Ness Avenue, San Francisco, has secured the distributing agency for the Rainier truck.

The Olympic Garage has been opened at 665 Sutter Street, San Francisco.

J. W. Van Matre, 32 North Broadway, Portland, Ore., has signed a contract to distribute Philadelphia vehicle, starting, lighting and ignition types of Diamond Grid batteries.

Leo A. Rohmer, Tacoma, has taken charge of the Saxon service station for Lou Schabel, Saxon and Paige distributor.

Aubry & Wire, Tacoma, have opened the Auto-Electrical Shop at 2102 South C Street. They will specialize in making springs for motor cars and will buy and sell electrical machinery.

Croston & Miller, Tacoma, proprietors of the Tacoma Avenue Auto Exchange, announce that after May 1 all automobile repair work will be charged for at the rate of \$1 per hour.

McDonald-Goodwin Co., Tacoma, has taken the agency in Tacoma and Pierce county for the Garford truck, which will be handled in addition to the Mitchell line.

Washington Oakland Co., Seattle, will hereafter retail Oakland cars in King County and Harry D. Austin has been named manager of the new company.

Pacific Motors Co., Inc., Seattle, has acquired the distribution of the Drexel line for Washington, Oregon, Idaho and western Montana. The Drexel will be handled in the same manner as the Harroun line, under the management of Grant A. Mark and R. B. Mark.

Electric Vehicle Co., Inc., Seattle, has been organized to handle the Detroit line by F. M. Scarlett and O. L. Willett and will occupy quarters with the Garner Motor Car Co.

J. R. Murphy, Seattle, will hereafter act as representative for the Denby line of trucks and become associated with the Farnsworth Motor Car Co.

Frazier & McLean, Portland, Ore., have let the contract for the construction of a three-story concrete garage, 100 ft. square, at Fifth and Taylor Streets. The building will cost \$40,000.

R. Aubry and L. Wire, Tacoma, Wash., have opened an automobile and electric motor repairshop at 2102 South C Street.

Bearings Service Co., Seattle, branch, has recently moved to new quarters at East Pine Street and Bellevue Avenue.

Wakefield Bros., Elma, Wash., have bought site in that city and will erect new garage to cost \$5,000.

Pennant Auto Co., Elma, Wash., recently took five-year lease on new garage under construction in that city.

Trail Garage Co., Trail, B. C., recently incorporated for \$10,000.

P. R. De Rosa, in charge of parts and service at the William T. Patten Motor Car Co., Seattle, has enlisted in the reserve corps which is being organized and qualified for duty as sergeant assistant truckmaster.

The Overland Garage, Colfax, Wash., has added the Oldsmobile to its line.

The Farnsworth Motor Co., Seattle, Abbott and Denby truck distributor, has acquired the Saxon line for the western Washington territory.

The Electric Vehicle Co., Inc., has been organized in Seattle by F. M. Scarlett, manager, and O. L. Willett, to take distribution of the Detroit Electric. Manager Scarlett until recently was with the Exide battery service station in Seattle. Company will occupy quarters with the Garner Motor Car Co.

The Washington Oakland Co., Seattle, has been organized by Harry D. Austin to take over the retail business of the North Pacific Oakland Co., distributor for Washington, Oregon and northern Idaho, the North Pacific Company to devote all of its time to wholesale business.

The Acme Motor Truck Sales Co., 209 Broadway North, Seattle, has established headquarters for distribution of the Acme truck line, obtaining the territory from the Cadillac Auto Truck Co. for Washington and Oregon. Warren F. Powers and F. W. Brehm are connected with the concern.

Crescent Garage, Bonners Ferry, Idaho, has begun work on construction of proposed new garage. Complete new equipment will be installed.

Kern & Son, Port Angeles, Wash., plan immediate construction of garage and repairshop to be 50 x 100 ft.

The Roslyn Auto Co., Cle Elum, Wash., has been taken over by John Juris, formerly connected with the Reliable Auto Co. of Cle Elum. The company will continue under its present name. The garage on Second Street will be enlarged, floor space being doubled by taking over adjoining building. A complete stock of accessories will be handled.

Wentworth & Irwin, 209 Front Street, Portland, distributors for G. M. C. and Doan trucks, have acquired ten-year lease on new quarters at Second and Taylor Streets. The new place will be remodeled and a new elevator installed.

Ballou & Wright, Portland, representing Smith Form-A-Truck attachment, have leased storeroom next to the company's Broadway store and will remodel same for office and showroom. F. A. Downes is manager.

Cook & Gill, Portland, have taken over the representation of the Paige car in Multnomah, Clackamas and Clarke Counties, Wash. The present repairshop will be maintained as a service station and a retail salesroom is being fitted up in the Sengstake Building. William Gill will have active charge of the sales department and F. A. Cooke will attend to service end.

Earl Beckwith, Elma, Wash., and Victor Nelson, formerly of Seattle, have opened the Shahan Garage on Fourth Street.

EAST

The Broadway Motor Sales Co., Ford dealer, has moved from former quarters at Fourth Street and Broadway, Louisville, Ky., into new salesrooms at 927 East Broadway.

The General Motors Truck Co., Hartford, Conn., has taken over the salesroom at No. 11 Main Street formerly occupied by Kingsbury & Wetherell, Inc. The place is being remodeled.

The Connecticut Tire Co., 359 Trumbull Street, Hartford, has laid the foundations for a three-story brick building and during the work of construction has opened temporary quarters in the rear.

A. H. Allen has opened Allen's Garage at Bowling Green, Va., and a repairshop with a first-class mechanic in charge of the work. He will also handle a few accessories, gasoline, oil and grease.

The Gomery-Schwartz Motor Co., Hudson and Ford dealer, has taken over the plant of the Star B Motor Co., at Ninth and French Streets, Wilmington, Del., which gives much more room and better sales quarters.

Eugene E. duPont, George L. Townsend, T. W. Campbell and Coleman B. Harris having sold their interest in the Harris Engine Co., Wilmington, Del., distributing agents for the Cadillac and manufacturers of the Harris marine engine, the new owners have elected the following officers: George W. Singleton of Philadelphia, president; W. C. Coyne, vice-president; W. A. Murray, secretary and treasurer; William Coyne, additional director, all being of Wilmington. The business is to be developed along both lines.

The Wyckoff Motor Sales Co., 420 N. Craig Street, representing the Chalmers car, have taken the agency for the Harroun car in the Pittsburgh territory.

L. G. Martin & Son, 3923 Forbes Street, Pittsburgh, have secured a large territory for the Jeffery-Nash pleasure cars and quad trucks. They will turn the retail end of their business in Pittsburgh over to Brown, Merrill & Zimmerman.

The Allison-Rider Co., Beatty Street, Pittsburgh, has secured the agency for the Jackson pleasure car and the Wilson truck.

Calvert Motor Co., 323 and 325 North Calvert Street, Baltimore; Nicholas S. Hall, Frank Klein and Carter Hall, who have been handling the Sterling trucks, will become State distributors for the Mitchell line.

The Tire Co., Baltimore, J. E. McGraw, president, has just purchased property 131 West Mount Royal Avenue, adjoining the present building, 133 and 135 West Mount Royal Avenue. The company now has 50 ft. frontage on motor row. The structure will be devoted to service department, with the upper floors for storage of stock.

The Tire Shop, Charles and Twentieth Streets, Baltimore, Messrs. Floyd & Rydstrom, accessory and tire dealers, will handle the Simplex truck tire for commercial vehicles.

SOUTHWEST

The Lewis Automobile Co., St. Louis, Chandler distributor, has leased additional space to extend the service station to 12,000 sq. ft. and for additional stock rooms.

The Red Rim Livery Co., St. Louis, has opened quarters at 3700 North Fifteenth Street, where Ford cars are rented to persons who know how to drive them. In advertising, the company seeks customers among owners whose cars are in the shop and visitors to the city. John S. Ellis is manager.

Arthur L. Walsh and A. S. Johnson, St. Louis, formerly connected with the Stearns distribution, have joined the Newell Motor Co. force.

C. J. Connors, St. Louis, recently special Southwestern representative of the Manhattan Tire & Rubber Co., has been named manager of the St. Louis branch.

Burt Storage Battery Co., 311 Central Street, Little Rock, Ark., has signed a contract to distribute Diamond Grid vehicle batteries.

Barrett Cotner, Cape Girardeau, Mo., has opened a garage.

Harry E. Wheeler, Mountain Grove, Mo., is building a garage.

Mike McGinnis, Marshall, Mo., is building a filling station.

Hall & Brown, Savannah, Mo., will conduct a repairshop and garage.

T. E. Hawkins, Shelburne, Mo., will build a garage.

D. S. B. Motor Co., St. Joseph, Mo., will move into its new quarters at Eleventh and Francis Streets.

The Bittel-Leftwich Tire & Service Co., St. Louis, has changed the corporate name to the Bittel-Leftwich Co. and will at once open a wholesale and retail accessory department. The company has confined its operations to Lee tires, wholesale and retail, and was the first of the tire companies to install a 24-hour service in this city. The new department is added because of the rapid growth of the wholesale tire business. A 200-page catalog will be issued at once. A two-story building, containing 12,000 sq. ft. of space, is being erected and when that is completed C. H. Shuptrine, formerly in charge of the accessory department of the Grand-Leader Department Store, will be the manager. The company has branch stores at Springfield and Decatur, Ill.

Starbuck & Son, Afton, Okla., are erecting a garage, 70 x 100 ft.

The Inter-State Motor Co., Commerce, Okla., has opened a station there and at Baxter, Galena, Webb City, Carthage and Anderson.

M. Louwen, Chandler, Okla., is building a garage.

Walsh & Johnson Electrical Co., Tulsa, Okla., have opened a service station for the Westinghouse automobile equipment, Dyneto Electric Starting & Lighting equipment and Eiseman magnetos.

The Flak Rubber Co., El Paso, Tex., has established a branch there.

The City Tire Shop, Snyder, Tex., has moved from the old City Garage to North Scarborough Street.

J. O. Bunting, Burns, Kan., has opened a garage.

Elmer W. Mariman, Eureka, Kan., has opened a vulcanizing and automobile repairshop.

Rozelle & Brown, Kanopolis, Kan., have succeeded the firm of S. S. Rozelle in the vulcanizing and accessories business.

The Tire Service Co., Pittsburgh, Kan., will move into new quarters on the first floor of the McCormick Building soon.

Asa Messenger, Pittsburgh, Kan., is building a \$20,000 garage.

Paul Rhoten, Renford, Kan., is enlarging his garage by 20 ft.

Joe Cain, Renford, Kan., has bought the Rock Island garage from L. A. Tilden.

Sappenfeld & Co., Scranton, Kan., have opened a garage.

J. W. Wallace, Wilson, Kan., has opened a tire and tube-vulcanizer business. He was formerly in Manhattan.

A. A. Price, Republic, Kan., has succeeded McClure & Son.

The Beverly Auto & Machine Works, Beverly, Kan., in which C. E. Eckhart has a half interest, will be run under his management.

Jake Walters, Beloit, Kan., has opened an automobile livery.

Charles Slater, Coffeyville, Kan., has opened a repairshop.

McCollum Brothers, Dodge City, Kan., will build a garage.

The Overland Sales Co., El Dorado, Kan., are moving into new quarters.

Wayne Walters, Everest, Kan., is opening a vulcanizing shop.

Ed. Clark, Hunnewell, Kan., recently bought the W. Paris garage.

Frank Bradley, Haviland, Kan., has bought the Charles Tucker Garage.

Charles Keating, Leavenworth, Kan., has opened a vulcanizing shop.

Carl Techgraeber, Newton, Kan., is opening a garage.

Gene's Auto Hospital, Peabody, Kan., has been opened here.

Karl Burns, Ellsworth, Kan., has bought an interest in the Arnold Motor Co.

H. L. Cline, Wamego, Kan., has bought C. E. Engle's garage.

Gilpin & Thompson, Humansville, Mo., have opened a garage.

Putnam & Sprinkle, Knob Noster, Mo., have opened a garage.

Franklin & Gamble, Mexico, Mo., have opened a garage.

Harold Harris, Odessa, Mo., has opened a garage.

W. E. Head, Pittsville, Mo., will open a garage.

L. W. Steinbach, Prairie Hill, Mo., will open a garage.

H. T. Ferguson, Rosendale, Mo., is building a new garage.

The Britton Tire Co., Brockton, S. D., will build a branch at Omaha.

Judge Ira Oglesby, Fort Smith, Ark., will erect a brick garage 75 x 140 ft.

John Wise, Vinita, Okla., Ford dealer, is building an addition to garage.

The Landon Garage, Waurika, Okla., will be opened soon.

D. L. Dean, Haskell, Tex., has opened a garage.

Guarantee Motor Car Co., San Antonio, Tex., is building \$20,000 quarters.

Deming Auto Co., Anthony, Kan., has bought the Gish Auto Co.

J. H. Uhlis, Elgin, Kan., has succeeded E. F. Howard.

Harley Lewis and George Sissell, Belleville, Kan., are both building garages.

D. T. Coolen, Bonner Springs, Kan., has bought the Golden Belt Garage.

Singleton Supply Co., Fredonia, Kan., has opened a 40 x 42-ft. garage.

The Wolfey Garage, Hiawatha, Kan., is being enlarged. It will be 100 x 140 ft.

L. J. Frederickson Tire Co., Hutchinson, Kan., has opened a branch here.

F. E. Doyle, Kingman, Kan., has opened a new brick garage.

Emmet Harley, McCune, Kan., has purchased the Fixit Garage.

Jess Emons, Pierceville, Kan., is building a tile block garage.

J. W. and J. H. Skaer, Wichita, Kan., will erect a \$50,000 garage.

Maughs & Conner, Fulton, Mo., will occupy a new garage to be built on the site of S. H. Powell's livery stable.

Russell Electric Garage, Kansas City, will move into new quarters at 3324 Main St.

George G. Bird, Lebanon, Mo., is erecting a new garage.

L. V. Woods, L. R. Carpenter and F. S. Baldridge, Laredo, Mo., are all building garages.

F. B. Grey, Humansville, Mo., will occupy the new Auto-Inn Garage.

Lin Howell and Joseph Hall, Kahoka, Mo., are opening their new garage and repairshop.

Ray Motley, Sedalla, Mo., has bought the Ed. Correll Garage.

The Yehle Garage, Tina, Mo., will soon be opened.

John Cobb and T. V. Phelps, Sal'sbury, Mo., have bought the garage of Carter & Hurry.

The Marathon Tire Co., St. Louis, Mo., will hereafter be operated as a branch of the Marathon Company of Cuyahoga Falls, Ohio.

SOUTH

M. Zilbermann, New Orleans, distributor for Oldsmobile, Premier, Empire and Hupmobile cars, has let a contract for a service station building at 321-23 North Broad Street at a cost of \$10,000.

The Abbott Automobile Co., New Orleans, La., celebrated the fifteenth anniversary of the firm's establishment last week by opening a separate service station and parts department at 857 Carondelet Street. The company distributes Packard, Chandler and Liberty cars, having sold the Packard since 1904.

B. W. Cotton, Nashville, Tenn., for several years manager of the Goodrich branch, has become manager of the motor car department of the Blackwood Auto Co.

The Overland Sales Co., Winston-Salem, N. C., has opened an exclusive Overland and Willys-Knight sales and service station at Seventh and Trade Streets. The company will carry in stock a line of tires, oils, greases and general accessories.

MIDDLE WEST

A. B. Page, Amberg, Wis., Overland dealer, is completing work on a new garage and repairshop costing about \$5,000.

The Kissel-Kar Co., 178-180 Seventh Street, Milwaukee, sustained a loss estimated at \$4,000 by fire in the basement storerooms of its garage and service building on April 26. The loss is fully covered.

Louis Indra, Green Bay, Wis., has disposed of his half interest in the Nelson-Indra Machine Co. and will become manager of the West Side Garage at Green Bay.

Joseph Fillpkowaki, 762 Lincoln Avenue, Milwaukee, has awarded contracts for the erection of a one-story garage and repairshop at Seventh and Lincoln Avenues, 30 x 116 ft.

The Lakeside Garage, Chetek, Wis., has been leased by James Mair, Jr., Maxwell, Oakland and Chevrolet dealer, and F. A. Richards, Ford dealer, who will operate a public garage business and repairshop. Richards will continue his Ford salesrooms separately, but his service department will be located in the Lakeside Garage.

P. M. Wolf & Son, Plymouth, Wis., Regal dealers, have opened a garage, salesroom and service shop in the former Oestreich machine shop at Mill and Milwaukee Streets, Plymouth.

The Morgan Auto Co., Chippewa Falls, Wis., has awarded contracts for the erection of a fireproof garage and repairshop, 47 x 92 ft., on West Spring Street, as an addition to the present garage building, which will be devoted to the machinestop.

C. B. Hentschel, 1328 North Eighth Street, Sheboygan, Wis., is building a one-story garage and repairshop, 50 x 50 ft., costing \$12,000 with equipment.

A. J. Bautz, 865 Layton Boulevard, Milwaukee, will erect a garage and repairshop, 60 x 130 ft., costing \$15,000, on Layton Boulevard, near Greenfield Avenue.

The Nekoosa (Wis.) Motor Car Co. is preparing to erect a public garage and repairshop, two stories, 50 x 100 ft., costing about \$15,000 complete.

The Christ Anderson Garage, 1220 Thirteenth Street, Racine, Wis., was damaged \$3,000 by fire on April 23. It will be rebuilt at once.

James Doyle, Madison, Wis., Buick dealer, has sold his business to Martin Flom, who has been Buick dealer at Stoughton, Wis., for several years. B. A. Lawton is a partner in the new agency, which will be styled Lawton & Flom.

The North-Western Motor Car Co., Milwaukee, a Ford dealer, has broken ground for one of the largest and finest Ford sales and service buildings in the Middle West. It will be two stories, strictly fireproof, 130 x 188 ft., and with equipment will cost at least \$65,000. It will be located at North Avenue and West Twenty-fourth Street. The show-room will be 40 x 100 ft. Ramps are provided instead of elevators. It is planned to fit up the roof for the purpose of teaching beginners to drive.

B. Degentesh, 885 Fifth Avenue, Milwaukee, has broken ground for a new garage and repairshop, 53 x 80 ft.

E. F. Miller, Dousman, Wis., has plans in preparation for the erection of a one-story fireproof garage and repairshop, 45 x 75 ft., costing \$10,000 with equipment and fixtures.

Myrman & Stone, Chippewa Falls, Wis., on May 1 moved their garage, salesrooms and repairshop to 19 East Central Avenue.

E. H. McDonald, Mt. Clemens, Mich., has opened a new garage and salesroom with the agency for Oakland.

Earl N. Kull, Monroe, Mich., has taken over Hausman interest in the Monroe Overland Company.

J. R. Inakeep, Flint, Mich., will build a garage.

The Wright-Overland Sales Co., Perry, Mich., has opened a garage and has the agency for Overland.

John Kline & Son, Calumet, Mich., will open a garage with the agency for the Emerson and carry accessories.

Robert G. Abbot and Arthur R. Wood, Howard City, Mich., will open a Ford service garage.

Thompson & Phillips, Jackson, Mich., will open a new garage with the agencies for Chevrolet and Briscoe cars.

The United Supply Co., Tecumseh, Mich., has opened a store and will handle accessories.

Roy and Fred Patterson, Jonesburg, Mo., will open an automobile business.

NORTHWEST

Louis Larson, Choteau, Mont., bought the Choteau Garage from Bateman Bros.

J. A. Robleson, Dooley, Mont., has bought a half interest in the Dooley Garage from G. A. Wright.

Dodge Service Station, Willmar, Minn., is building a brick garage, 45 x 75 ft.

Korhonen Auto & Garage Co., Biwabik, Minn., incorporated at \$50,000 by Emil Korhonen, John Nopola, D. C. Christopher and others.

Bears & Haynes, Judith Gap, Mont., sold their repairshop to the Gap Garage.

Fairview Auto Co., Fairview, Mont., will build a garage at Ellery and Fifth Streets.

Peter Gritz, Glasgow, Mont., will build a garage, 40 x 70 ft.

Karnon & Beley, Harlowton, Mont., are building a garage, 60 x 120 ft.

J. H. Duxbury, Canova, S. D., has begun a garage, 34 x 40 ft.

Herman Berg, Faulkton, S. D., will turn his store into a garage.

Duluth Auto Exchange, Duluth, Minn., has opened at 201-207 East First Street.

Gascoyne Garage Building Association, Gascoyne, N. D., is erecting a garage for B. I. Johnson.

H. T. Graves, Bessie, N. D., is building a garage.

Day County Garage Co., Webster, S. D., building a brick and tile addition, 50 x 57 ft., one story.

Carbury Motor Co., Carbury, N. D., is building a garage.

L. K. Herz and Charles Williner are building a \$3,000 garage at Grand Avenue and Oxford Street, St. Paul. It will be fireproof, two stories, 110 x 150 ft., with capacity for 100 cars.

The Standard Oil Co. is building filling stations at Cypress Avenue and Livingston Street, St. Paul, to cost \$2,500, and at University Avenue and Gaultier Street to cost \$2,500.

H. L. Bartlett, Sumatra, Mont., is building an addition to his garage, 18 x 36 ft.

R. B. Marshke, Fingal, N. D., will build a garage, 30 x 75 ft.

Charles Marcellus, G. H. Hohaus and others, Forman, N. D., are building a garage to cost \$10,000.

L. H. Powell, Marshall, Minn., has begun a two-story garage.

Mickelson Bros., Garretson, S. D., have opened a vulcanizing shop.

C. L. Simpson, Henning, Minn., has taken charge of the Cordes Bros. Garage.

A. A. Hjortas, Bellingham, Minn., has opened a repairshop.

J. A. Lyons & Co., Prior Lake, Minn., are building a combination garage and machine-shed.

Lisbon Motor Service Co., Lisbon, N. D., has begun a new garage.

Axel Buck, Askov, Minn., has begun work on a two-story brick garage.

C. T. Kyte, Lake Andes, S. D., building an addition to Ford garage.

McKinney-Fuller Motor Co., Grand Forks, N. D., has let contract for \$70,000 garage.

Ole Hammerness, Holt, Minn., has opened a garage in the Relerson Building.

Oscar Hegre, Montrose, S. D., has bought the Montrose Garage.

Standard Oil Co., Winona, Minn., will erect \$20,000 service station at Fourth and Jackson Streets.

I. G. Matthews, Winona, Minn., will erect a brick and tile garage, 50 x 100 ft.

F. R. Mars, Marshall, N. D., will enlarge his garage.

James Lewis, Drummond, Mont., has begun building a garage.

C. J. Brown, Mountain Lake, Minn., will build a garage.

Dundee Auto Co., Dundee, Minn., is building a garage.

A. M. Hanson and T. Offerdal, St. James, Minn., are building a garage, 23 x 60 ft.

Lierboe & Nelson, Hurdsville, S. D., have rented the Lee Benshoff garage and shop.

Norris Ravnes and M. L. Madsen, Glen Ullin, N. D., will open a garage.

Martin Moberg and Axel Palm, Murdock, Minn., have opened a garage.

Jack Sturgeon, Marshall, Minn., has converted his barn into a large garage.

Frank Johnson and Henry Kroken, Fosston, Minn., have opened a garage.

Hessinius & Sleubert, Wilmont, Minn., have bought the Wilmont Auto Co. garage.

The Hoffmeister Garage on Pender Street West, Vancouver, B. C., badly damaged by fire several weeks ago, is to be rebuilt in the near future.

CANADA

The R. S. Mentrup Garage, Butte, Mont., has been sold to Joe E. Schairer and V. J. Applegate, who will continue the business under the name of the Anaconda Overland Co.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By Geo. F. Kaiser

Can Retake Car By Force

Editor Motor World: On a repair job agreed to be cash before delivery, I demonstrate to the owner that it is all right, myself driving. Then he wants to try it himself. I will say that I was warned to look out for him. Suppose he drives toward his house or to another garage with the idea of getting it out of my possession. Could I shut off his engine and refuse to let him take it further from my place? Could I add to the contract price to pay for the time he was wasting arguing over the right to drive it all around the town for a trial? I think so, but want to get your opinion.

After we have been out he admits that he has no money with him and I hold the machine till the next day for the money. He is a boarder and has a key. I fix it so it will not be very easy to start, but could be started by a mechanic in about an hour—and take off his numbers. I did not chain the wheels. If he had come for it with a set of garage plates or borrowed a set of numbers from one of the other machines and gone away, returning the plates later, but not the machine, could I have done anything? There is no one here all night. If it had been chained and he had cut the chain and gone, would I have any claim except the civil one, which would not hold, as he hasn't anything?

As a matter of fact, none of these things happened, but he came in the afternoon, took up about 2 or 3 hours more time talking and trying it out again and then paid his bill, as he could not find any fault.

He did start to readjust the clutch, but I told him before a witness that the machine had not been turned over to him and that there would be an extra charge if I had to spend another hour or two to get it going after he had put it out of order.

The fact that he is still a boarder shows that he did not really hold the charges unreasonable, but simply did it in the hope of getting away without paying.—Herbert A. Fiske, H. A. Fiske Garage, New Bedford, Mass.

Answer—As to an owner attempting to deprive you of possession of a car before he has paid for repairs, I would

say that you would be justified in retaining possession even if you had to resort to force—provided unnecessary force was not used. I would certainly tell him that I would make a charge if, after a reasonable demonstration, he still insists on driving around, and I think in some cases the courts would uphold such a charge.

If the car driver had taken his car from your garage at night without your permission I am afraid your only action would be a civil one. Massachusetts should have a law making it a misdemeanor to deprive a garageman of his lien, just as Maine and many of the other states have. In Maine a fine of \$100 or three months' imprisonment may be the penalty in a case like the above.

Who's Responsible For This Accident?

Editor Motor World: Recently this firm became involved (indirectly) in an automobile accident, and as it was a rather complicated affair, we are at a loss to know just how to apportion the responsibility. We are therefore asking your opinion in regard to it.

A local physician's Ford car, having been left in our repairshop to be repaired, and it being necessary for him to have another car to use during that time, we loaned him a second-hand Ford roadster.

We had lost the switch key out of this car (Ford roadster) which we loaned the doctor, and had turned the switch on, not using any key. In consequence we had been driving it that way, stopping the motor by pulling the priming wire in front.

This was the condition of the car when the doctor took it from our place. Soon after he left our place with the car, he went to his office and left the car (which we had loaned him) standing on the street in front of his office, as was his usual custom with his own car. Soon after this another Ford owner parked his car directly behind the Doctor's, and desiring to get it out while the Doctor's car was standing there, found it necessary to move the latter and proceeded to do so.

In order to push the car, he had re-

leased the break and, we presume, put the lever too far forward, letting the clutch in, and then he and his wife got behind it and began pushing it.

Of course, the car started and continued to go until it had gone through a plate glass window near by on the opposite side of the street, and also damaging the front of this door to quite an extent. Also the car was damaged quite a good deal.

Now the insurance company has presented their claim for damage to the window and I also have a repair bill for fixing up the car. The entire bill on the car and window amounts to about \$100.

We apprehend no legal trouble in this matter, as all parties concerned show a willingness to pay their share, but we are at a loss to know how to apportion the same. The three persons concerned are ourselves, the doctor, and the man who pushed the car, and we might add the insurance company, who, while not responsible for the accident, had insured the window against loss by whatever accident might happen to it.—I. B. Huffman, 18 East Winter Street, Delaware, Ohio.

Answer.—You must remember that the Ohio law has no such provision as some of the other States, namely, that a car left unattended at the curb must be equipped with some locking device so that it cannot be started. If that provision were in the law the responsibility could be thrown upon the doctor. As it is, however, I think the man who tampered with the machine is responsible for the damage done, as if he had let it alone nothing would have happened and everyone would have been happy.

I do not see how you are legally responsible, in any event not more than if you had loaned a gun to a person who accidentally shot another. My opinion is that the person who put the car in motion ought to stand the loss.

Missouri Has 125,577 Cars

ST. LOUIS, May 7—125,577 licenses have been issued in Missouri this year, beginning Feb. 1. The total number last year was 107,865. Of those issued this year, St. Louis took 22,794 and St. Louis County 3141. Kansas City took 13,141 and Jackson County 1758.

A Department of Better Mechanics

No. 22

How to Remove the Gearbox

From a

Series N Hupmobile

CARELESS gear shifting and insufficient lubrication caused by lack of attention on the part of the driver are the chief causes of gear trouble. Replacement of gears necessitates the removal of the gearbox. Following the method herein outlined, the job has been done in 3 hours.

EVIDENCE OF TROUBLE

Noisy gears, especially when the engine is idling.

INSPECTION

- 1—Remove the floorboards.
- 2—Remove the gearbox case cover. The gears may then be seen and felt, and their condition noted.

TO REMOVE GEARBOX

- 1—Remove drain plug at the rear end of the oil pan, and drain the crankcase.
- 2—Disconnect the universal joints, both at the front and rear of the driveshaft, and drop the driveshaft.
- 3—Disconnect the gearshift rods and remove.
- 4—Disconnect the speedometer drive.
- 5—Disconnect the clutch throw-out

rod running from the cross shaft to the gearbox.

- 6—Disconnect the wires running to the spark coil, and mark them so that they may be returned.
- 7—Remove the flywheel housing cap, together with spark coil.

- 8—Remove the three cap screws holding the starting switch to the starter pedal bracket and pull the starting switch to one side. This is easier than removing the wires running to the switch, and gets the switch out of the way.
- 9—Loosen the lock nut holding the inside lock ring to the starter pedal cross shaft. See Fig. 1.
- 10—Slide the lock ring towards the

gearbox. The inner end of the starter pedal cross shaft may then be pulled free from its bearing in the gearbox housing.

- 11—Remove the starting motor lever from the gearshift rod in the engine base.
- 12—Remove starting motor gearshift lever spring.

- 13—Remove the bolts holding the starting motor pedal cross shaft bracket to the flywheel casing flange.
- 14—Pull the bracket out to one side.
- 15—Remove the bolts holding the gearcase to the engine. A $\frac{1}{2}$ -in. off-set socket wrench facilitated the work.

- 16—Lift up on the rear of the gearbox, slide the whole unit back and then

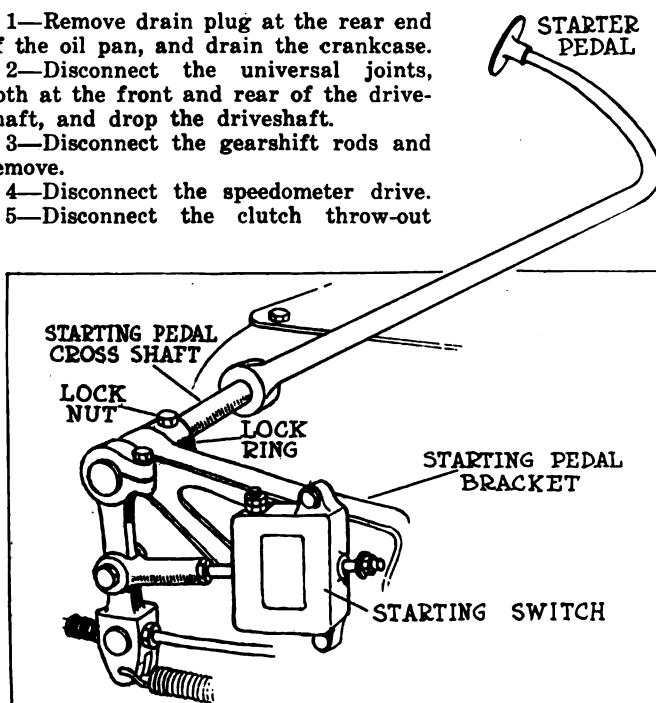


Fig. 1—Starting motor switch details, showing mechanism which must be removed

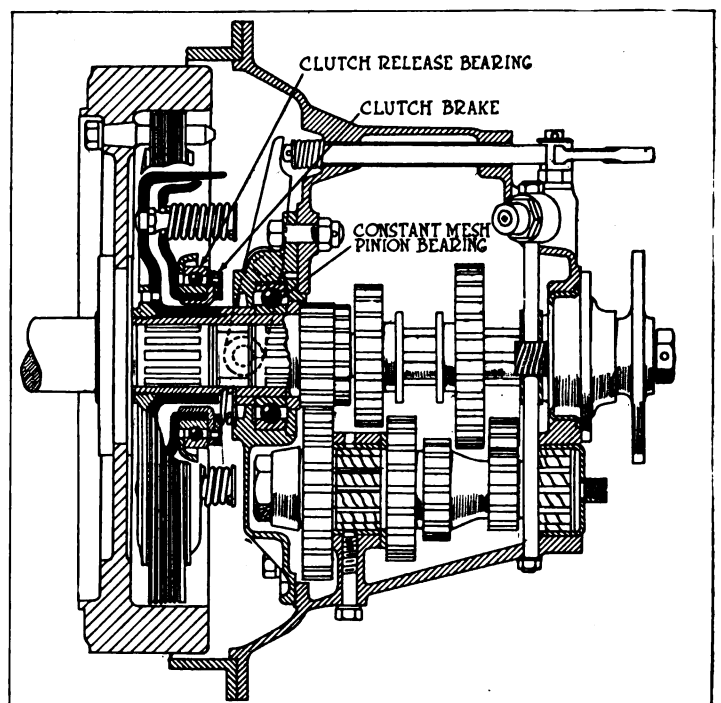


Fig. 2—Section through clutch and gearbox, showing details of construction

Previous Articles

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Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs.....	3	Dec. 27
Chevrolet—Clutch repairs.....	4	Jan. 3
Berg & Beck—Clutch adjustments.....	5	Jan. 10
Hudson—Oil pump adjustments.....	6	Jan. 17
Reo—Clutch adjustment.....	7	Jan. 24
Buick—Rear axle adjustment.....	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
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Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor.....	12	Feb. 28
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Ford—Overhauling axle in 1 hour.....	21	May 2

lift it directly up and out. Two men are required to do this. The work is facilitated by the use of a block and tackle.

17—Place the whole assembly on the bench.

GEARBOX DISASSEMBLY

The oil may then be drained from the gearbox and the balance of the tearing down done. The main points here are:

1—Remove the front bearing lock nut setscrew and then remove the lock nut. The clutch may then be taken out.

2—Remove the universal flange nut and the universal flange.

3—Remove the front bearing.

4—Remove the plate forming the front of the gearbox.

5—The gears may now be removed.

All parts should be washed with kerosene or gasoline. Particular care should be taken in washing the bearings, as these must be absolutely clean and free from grit when replaced. New parts should be provided to replace worn ones.

THE REASSEMBLY

In the assembly these are the most important points to watch:

1—The constant mesh pinion bearing, Fig. 2, must be replaced so that the words "Thrust Here" on the inner race faces the clutch, and those on the outer race face the gears.

2—The clutch release bearing, Fig. 2, must be replaced so that "Thrust Here" on the outer race faces the engine, and "Thrust Here" on the inner race faces the gears.

Improving Hudson Cooling

In cases where it is difficult to warm up No. 1 and No. 6 cylinders, we would advise that you remove the cylinder head and change the course of the circulating water in the following way:

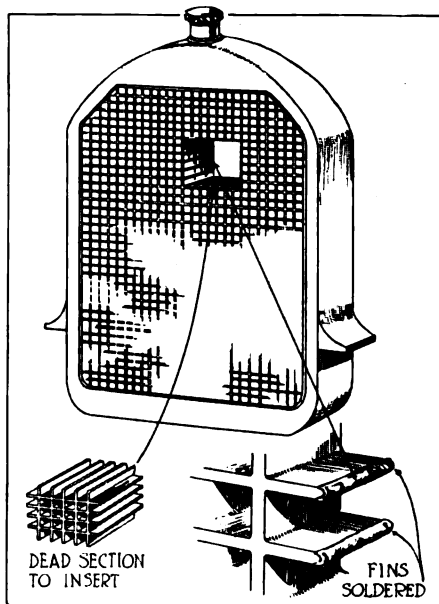


Fig. 3—The leaky section is cut out, the edges soldered up to prevent leakage, and then a dummy section is soldered in place

Cut two discs of thin metal. Drill a $\frac{1}{2}$ -in. hole in the center of each and place these in the two large water holes of the cylinder head gasket. These should, of course, be thinner than the gasket itself when compressed, and will be held in place by the cylinder head itself. The water holes on the top of the cylinder, which are $\frac{5}{16}$ in. in diameter, should be reamed out to $\frac{3}{8}$ in. and the $\frac{3}{16}$ -in. holes should be reamed out to $\frac{1}{4}$ in. diameter.

By doing this a very uniform circulation of the cooling liquid will be brought about, and the more exposed No. 1 and No. 6 cylinders will receive more heat from those adjacent.

Adjusting Hudson Wheel Bearings

The front wheels of the model J cars are equipped with larger bearings than heretofore. These cars left the factory with the front wheels properly adjusted, but with their spindles equipped with thin ($\frac{3}{32}$ -in.) dust washer retainers.

In all probability, on some of these cars there is very little clearance between the outer bearing cone and the shoulder on the spindle. Therefore, after a car has been in service for some time, the limit of adjustment may be reached.

To give these wheels plenty of adjustment it will be necessary for you to install a thicker washer ($\frac{3}{16}$ in.).

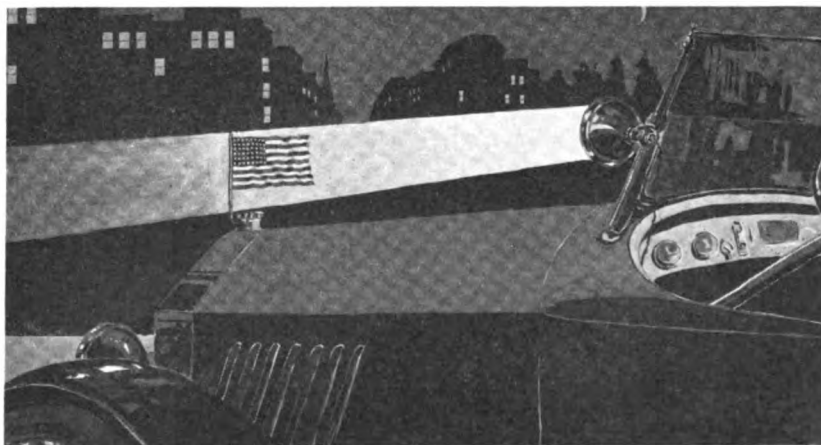
This lack of adjustment will reveal itself by allowing the wheels to have a slight looseness, although the spindle nut has reached its limit of travel.

Watch for this during your inspection of cars. When you find one, rectify it at once by fitting a thicker dust washer retainer.

Honeycomb Radiator Repair

Honeycomb radiator repairing is exceedingly difficult, at the best, but a simpler method of repair is illustrated in Fig. 3. The leaky section is entirely removed, and the water passages entering into all sides of the resulting opening are soldered up. After testing, a dead section is inserted in the opening, and its edges soldered to the edges of the opening. Though the cooling capacity of the radiator is somewhat reduced, the job is permanent.

Spotlight Makes Flag Stand Out



THERE is no finer sight at night than a silk flag mounted on the radiator cap and illuminated by a spotlight. The bright rays from the light make the National Emblem shine out in sharp contrast to the darkness of the night. This is an unexampled opportunity to sell a flag, a flag bracket and a spotlight together.

Truck, Tractor, Motor Boat and Aeroplane In Reach of Dealers

Standardization Work of Society of Automotive Engineers Will Tremendously Expand Field

MOTOR car, motor truck, farm tractor, motor boat and aeroplane are soon to be one and the same to the dealer who sells cars, the garageman who stores them, the repairman who has their maintenance and the supplyman who sells equipment for them.

This is the big message which the Standards Committee of the Society of Automotive Engineers has for the automobile trade. And at the last meeting of this committee, held in Cleveland, May 3, greater strides were made for a co-ordination of these various interests than have been made in any previous year of the society's existence.

Merely to standardize the various components and hundreds of small parts of the motor car so that great masses of stock may be eliminated, so that service may be made immeasurably quicker, and so that the burden of the dealer, the garageman, the repairman and the supplyman is made only a fraction of its previous weight has been in itself a great work.

But now the society has gone not one but several steps further in the same direction. By applying certain motor car standards to farm tractor, motor boat and aeroplane, and by creating new standards for these vehicles where none existed before, the society is going to make it possible for the automobile trade to expand enormously. Figuratively speaking, it will bring the farm tractor, the motor boat and the aeroplane to the door of the dealer, the garageman and the repairman.

Marine Standards Recommended

Just how far this work has been carried may be judged from the fact that at the Cleveland meeting the Marine Standards Division recommended that some sixty-odd motor car standards be adopted for motor boat use. These include all manner of parts, such as adjustable and plain yoke ends, eye rod ends and pins, cotter pins, spark plug shells and screw threads, tap drills, roller bearings, carburetor flanges, throttle levers, over-size cylinders, piston ring grooves, storage battery directions, etc.

If these standards are adopted, and in all likelihood they will be accepted, this means that the dealer, garageman or repairman near any waterway can fill the wants of motor boat owners from his stock shelves; that a large proportion of the motor car repair parts the repairman has in stock can be used also to repair motor boats.

Take the case of aeroplanes. Obviously not all the components of these ve-

hicles of the air can be made interchangeable with motor car, truck and tractor parts, but many of them can. Spark plugs, for example, might well be a standard size; turnbuckles and yoke ends can be standardized, and this work is being done; ball and roller bearings can be interchangeable; storage battery sizes can be the same.

At the Cleveland meeting the Aeronautic Division of the Standards Com-

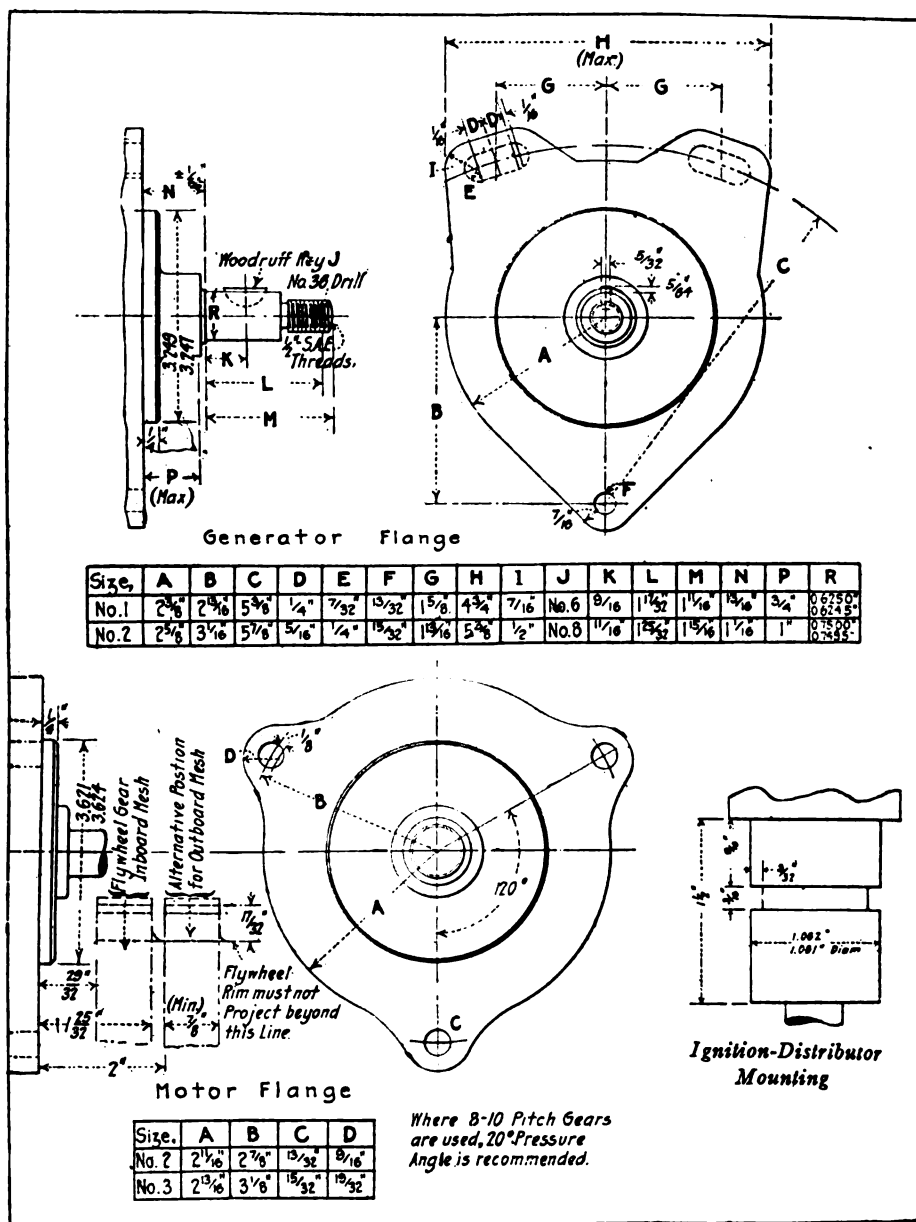
mittee recommended some thirteen standards for adoption, and these recommendations now are before the War Department of the Government for approval.

Undoubtedly one of the most important works which the meeting took up was the standardization of electric generator and motor flanges and ignition distributor mountings. At present there are many different dimensions of couplings and interchangeability is impossible except in a very few cases.

Simplifying Generator Couplings

Under the newly proposed standards of the Electrical Equipment Division, there are to be but two sizes of flanges for electric motor and generator flanges; this means that eventually a very large proportion of starting motors and generators will be interchangeable in so far as their couplings are concerned;

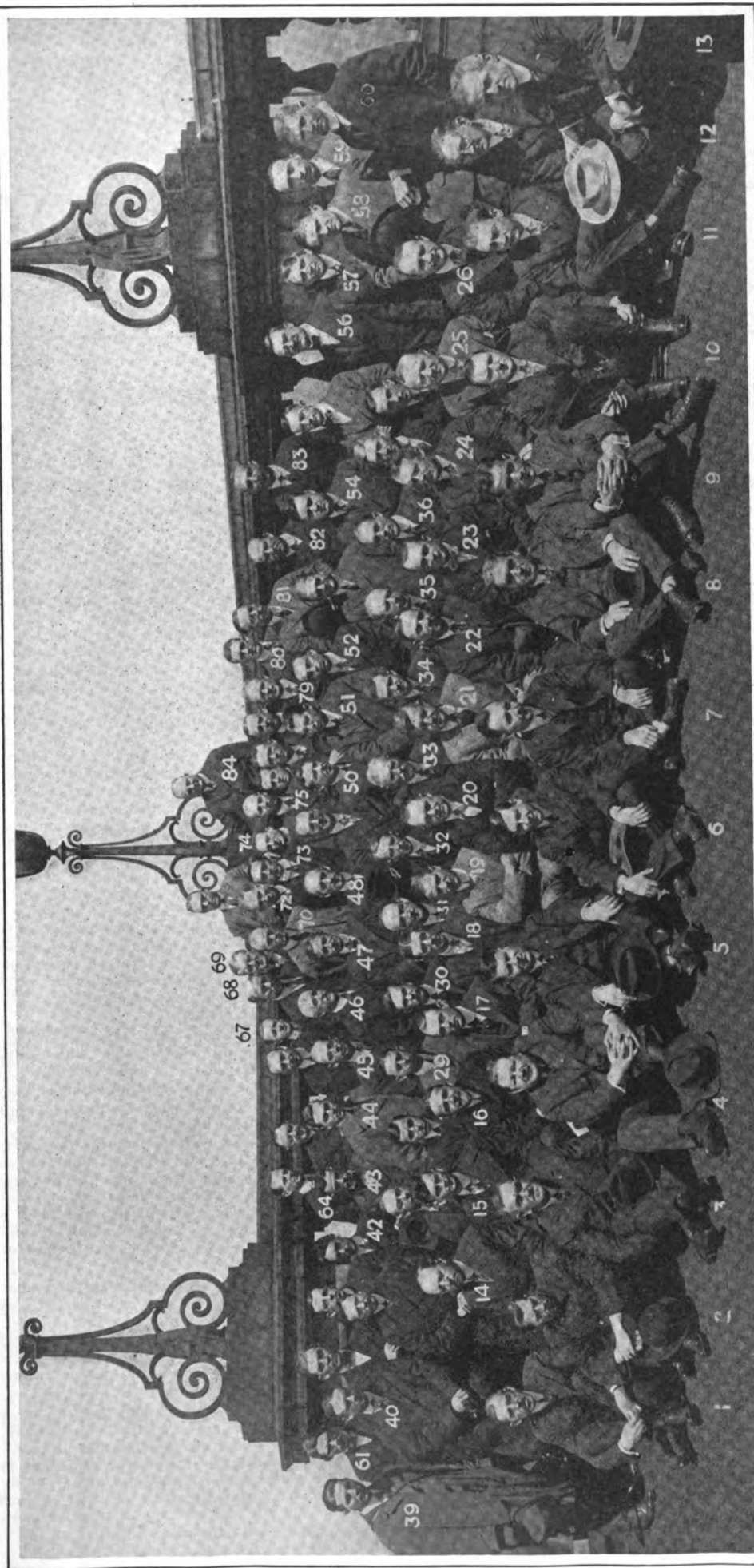
(Continued on page 45)



Here are the two proposed standard sizes for electric motor and generator flanges and distributor mountings. When these are in general use replacements will be tremendously simplified

Members of the Standards Committee of the Society of Automotive Engineers

—In Session at Cleveland May 3



- | | | |
|--|--|---|
| 1—M. W. Hanks, Westinghouse. | 43—C. B. Veal. | 64—M. W. H. Wilson. |
| 2—H. R. Cobligh. | 44—Paul Bauder, National Elec. Co. | 67—R. S. Lane. |
| 3—W. Tuttle. | 45—W. C. Keys, Cadillac Motor Car Co. | 68—T. V. Buckwalter. |
| 4—Mr. Van Blerck of Van Blerck Motors Co. | 46—Prof. R. M. Anderson. | 69—J. F. Kalb. |
| 5—Mr. Abbott. | 47—C. E. Clemens. | 70—R. J. Nightingale. |
| 6—D. S. Hatch. | 48—E. H. Ehrman. | 72—H. C. Snow, Winton Motor Car Co. |
| 7—C. S. Crawford, Premier Motor & Vehicle Corp. | 49—A. F. Milbrath. | 73—C. Carson. |
| 8—Ernie Nadell, Stewart-Warner Speedometer Corp. | 50—A. C. Woodbury, Recorder, S. A. E. | 74—Bruce Ford. |
| 9—E. G. Gunn, Premier Motor & Vehicle Corp. | 51—A. E. Knowles, Saxon, Standard Welding Co. | 75—J. E. Hale, Goodyear Tire & Rubber Co. |
| 10—A. D. T. Libbey, Splitdorf Electrical Co. | 52—W. H. C. Manternach, Standard Welding Co. | 79—W. M. Newkirk. |
| 11—J. R. Carleton. | 53—J. G. Perrin. | 80—W. A. Chryst. |
| 12—C. C. Carleton. | 54—J. E. Duesenberg. | 81—Mr. Palmer. |
| 13—C. B. Whittlesey, U. S. Rubber Co. | 55—J. E. Diamond. | 82—E. Sweet, Cadillac Motor Car Co. |
| | 56—J. E. Freese. | 83—Jos. Bijur, Bijur Motor Light- ing Co. |
| | 57—E. W. Weaver. | 84—A. C. Bergmann. |
| | 58—R. E. Plympton. | |
| | 59—Geo. Moskovics, George Roller Bearing Co. | |
| | 60—O. F. Conklin, Remy Elec. Co. | |
| | 61—Frank Conrad, Westinghouse Elec. & Mfg. Co. | |
| | 62—W. E. McKechnie, Cadillac Motor Car Co. | |
| | 63—H. J. Garceau, Warner Gear Co. | |
| | 64—W. L. Bliss, U. S. Light & Heat Corp. | |
| | 65—W. A. Frederick, Continental Motors Co. | |
| | 66—F. A. Whitten, General Motors Co. | |
| | 67—Mr. Fuller. | |
| | 68—J. E. Schipper, The Automobile. | |
| | 69—Prof. D. L. Gallup. | |
| | 70—E. W. Miller. | |
| | 71—A. J. Slade. | |
| | 72—F. Jehle, Aluminum Castings Co. | |
| | 73—Theo. Marburg, Marburg Bros. | |
| | 74—F. J. Jarosch, Bearings Co. of America. | |
| | 75—A. L. Clayden, The Automobile. | |
| | 76—K. W. Zimmerschied, General Motors Co. | |
| | 77—Coker F. Clarkson, Gen. Mgr. S. A. E. | |
| | 78—J. G. Utz, Chairman, Standards Committee. | |
| | 79—Wm. M. Britton, Quartermas- ter's Dept. | |
| | 80—C. W. McKinley, Willys-Over- land Co. | |
| | 81—W. P. Kennedy, Carnegie Steel Co. | |
| | 82—C. F. W. Rys, Carnegie Steel Co. | |

MOTOR WORLD

Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

A Summary of Used Car Sales Conditions

Sales have shown a falling off during the past week in practically every section of the country. Dealers attribute this entirely to the weather, which has been unusually unseasonable. It is predicted that if the sun shines next week, sales will show a decided advance over those of last week.

Albany, May 7—Last week was the lightest week that Albany dealers have known; few sales were reported. The reason is the weather. For 4 days it has rained and since Sunday last the sun hasn't shown once. Even the largest dealers in used cars report no sales. Some of the smaller ones made a few sales, but the majority report that things were dead during the week.

Milwaukee, May 7—Used car business during the past week has been fair, considering the fact that during the previous week the Milwaukee Automobile Dealers' Association held its first annual 7-day Used Car Congress in the Auditorium and sold more than 115 cars. The effect of the show was to bring a considerable number of used cars into the market by reason of the purchase of new cars. Prices obtained for used cars at the show as a rule were surprisingly good and many private owners were thereby induced to offer their old cars in trade for new ones.

Fargo, N. D., May 7—The trade of a community such as this is determined for the most part by the prosperity of the farmers. At the present time, the heavy rains have turned fields into swamps, making seeding impossible, and creating a serious situation. As a result the motor trade is very dull, but it will revive with a change in the weather.

Philadelphia, May 7—Conditions in the used car market are still held back by the war situation, but during the past week there was a slight improvement over the preceding week. The consensus of opinion is of a hopeful nature and dealers expect that sales will be more brisk when weather conditions are more favorable. At present the weather has remained cool and this is causing buyers to wait a while.

Louisville, Ky., May 7—Few used cars were sold in Louisville this week, owing to adverse weather conditions.

Denver, May 7—The number of used cars sold during the last week has been below average, and the main cause suggested by most dealers has been bad weather. Others have not had any used cars on hand, or those they had were not in shape to sell. One dealer reported several prospective sales pending and expects to close them as soon as he finishes overhauling a bunch of cars now in the shop. Another reports a good week because he had plenty of cars ready to sell and kept right after prospective cus-

tomers. A few point to a lively record of no-trade sales on new cars as more than offsetting the lack of used car sales.

Hartford, May 7—Continued cold weather has materially lessened activity in the used car market. Hartford is in the throes of a backward season. But even under the disadvantage of poor weather the dealers feel they are giving a fairly good account of themselves. The tendency to clean out used stocks is increasing as is the desire to steer clear of trades. Practically every dealer will consider trades in which cars with good resale value are concerned.

Providence, R. I., May 7—Dealers have eased up on used cars during the past week. Miserable weather has had its effect, but there is much promise in the future. Freight conditions are giving dealers much of their trouble on new cars at present and many have resorted to express companies for relief. Many have come here from New York, Boston, Worcester and Springfield in the past week. Dutée W. Flint brought four miles of cars over the road from Springfield, Mass.

Omaha, Neb., May 7—Several days of wretched weather cut materially into used car sales, as well as new business. Dealers were ready on the whole, however, to be optimistic on this score, as the heavy precipitation during the dull week is just what the farmers of this territory need to restore their spirits after the disheartening loss of the winter wheat crop. The tendency among the dealers since the recent meeting of the trades association here is to tighten up on the handling of used cars, and this also may have been a factor in the falling off in sales. It appears to be the current belief that the sales will shortly resume normal proportions, but with better results, due to the new policy.

Peoria, May 7—The continued sales of used cars have been more than gratifying to dealers. Despite the war, sales have been increasing each week and dealers predict that this will continue unless something unusual occurs. There has also been an increase in the sale of new cars.

St. Louis, May 7—While fewer sales than usual were reported this week, the dealers ascribe this to the weather and say that the market remains very strong. Many cars are being sold to country buyers, who prefer to pay more for a used car in the city than at home, where it is known as the "Bill Jones" car, so the weather counts. At

present most used-car specialists are wondering which way the market will jump because of the war. Not a few are predicting an advance in values.

Indianapolis, Ind., May 7—April has been one of the worst months in the history of the used car business in this city. Weather conditions have resulted in fewer sales than in corresponding months of former years. From the standpoint of weather, April also was one of the worst months that can be remembered. Cold, storms and rains conspired together to stop sales during what is generally considered one of the best business months. Taking the bad weather into consideration, the trade is of the opinion that it has done all of the business that might be expected. Dealers report, especially those dealing exclusively in used cars, that a great many cars at attractive prices are being offered by owners. There is no doubt but that talk at Washington concerning taxes to be placed on motor cars, oils and gasoline is having a bad effect on the car owners of small means—especially that class of owners that patronizes the used-car end of the industry exclusively.

Kansas City, May 7—Owing to the unusually bad weather this week the sale of used cars has been very light. Many dealers are complaining about a shortage in supply.

Detroit, May 7—Used car sales have been going up and down with the thermometer. Sales were few at the first of the week, but picked up towards the latter part. Heavy, or high priced cars, are not moving rapidly; the demand seems to be for light cars. Fords, particularly, are at a premium and may be moved quickly at an approximate increase of \$35 over the prices of the last month.

San Francisco, May 7—Trade in used cars during the past week was a trifle more spirited than the preceding week. As usual the cheaper priced cars were leaders in the buying. Fear of draft in the army has up to the present put no ban on motor buying in this section.

New York, May 7—The market has been very poor during the past week. Sales have fallen off to a marked degree. Dealers lay this to the weather, which has been exceedingly unseasonable. It is hoped that sales will pick up with a rush next week if the sun shines and some warmth creeps into the air.

THE prices given in MOTOR WORLD USED CAR PRICE RECORD are re-sale prices—not allowances or appraisals. *They are the prices that dealers have realized.*

It is important to bear this in mind when using the Record as a basis for appraisals and allowances. It means, in fact, that in every case these cars were taken in at from \$75 to \$100 less than the re-sale price quoted.

Always deduct at least \$75 as a basis for allowances. The amount it costs to put a car in a salable condition varies. In some cases it may be as little as \$10 and in others, where a complete overhaul is done, it may be more than \$100. In any case, overhead must be considered, storage, light, heat, sales commissions, etc. All of these factors make a deduction of at least \$75 imperative.

THE figures in the tables are the prices brought by used cars sold during the past week. Most sales are quoted "As is." Where an asterisk (*) follows the price, it signifies the car has been overhauled; two asterisks (**) signify partial overhaul. Where more than one sale of a particular model has been reported, the prices have been averaged.

Albany				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CADILLAC—				
53	1916	....	1600*	....
51	1915	....	1150*	....
....	1913	....	600*	....
HUDSON—				
SS	1916	....	1475**	....
6-40	1915	....	700**	....
MARION—				
....	1910	90	....	....
MAXWELL—				
25	1916	400	....	....
WILLYS-KNIGHT—				
84	1917	....	....	1200†
†Four-passenger roadster.				

Austin				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CADILLAC—				
....	1912	300	....	....
CHEVROLET—				
490	1917	570	....	....
490	1916	400	....	....
OVERLAND—				
....	1914	600	....	....
STUDEBAKER—				
....	1911	200	....	....

Baltimore				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
DODGE—				
....	1916	475	....	....
HUDSON—				
SS	1916	....	1100	....
6-40	1915	....	700	....
KISSEL—				
100P	1916	1000*	....	....
MAXWELL—				
25	1916	425	....	....
OVERLAND—				
79	1916	450	....	....
83	1916	350	....	....
STUDEBAKER—				
17-4	1917	....	625	....
16-6	1916	....	650	....

Bridgeport				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CADILLAC—				
....	1914	800	....	....
....	1913	400**	....	600**
....	1912	....	....	300
CHALMERS—				
6	1915	....	650**	....
6	1913	300**	....	....
HAYNES—				
....	1917	1000	....	....
....	1913	450**	....	....
KING—				
....	1914	350**	....	....
MITCHELL—				
....	1915	....	....	500**†
OVERLAND—				
83B	1916	475*	....	....
86	1916	....	775*	....
....	1914	....	....	250**
REO—				
6	1915	500	....	....
†Four-passenger roadster.				

Chicago				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
DODGE—				
....	1916	550**	....	....
DORT—				
....	1917	640	....	....

CHICAGO—Continued				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
JEFFERY—				
4-69	1916	700*	....	....
662	1916	....	700**	....
....	1915	....	750**	....
MAXWELL—				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
25	1916	375**	....	....
25	1915	375*	....	....
....	1914	300*	....	....
MITCHELL—				
....	1913	250	....	....
OVERLAND—				
83	1915	400	....	....
81	1915	....	....	350
79	1914	....	....	200
REO—				
....	1916	....	....	550**
SCRIPPS-BOOTH—				
....	1916	....	....	500**

Cincinnati				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
28	1912	....	....	200
CHALMERS—				
MS	1915	....	600	....
KING—				
....	1912	....	....	225
MARMON—				
....	1912	315	....	....
OAKLAND—				
....	1913	250	....	....
OVERLAND—				
83	1916	400	....	....
PAIGE—				
6-46	1916	750	....	....

Columbus, O.				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D44	1916	725	....	....
D37	1915	....	....	550
....	1913	....	....	200
CADILLAC—				
....	1914	700	....	....
....	1913	....	....	650*
CHALMERS—				
MS	1914	600	....	....
DODGE—				
....	1917	700	....	....
FRANKLIN—				
8	1916	1300	....	....
HUDSON—				
SS	1916	....	100	....
MAXWELL—				
25	1915	300	....	....
OVERLAND—				
83B	1916	550	....	....
80	1915	500	....	....
83A	1915	425	....	....
....	1913	250	....	....
STUDEBAKER—				
6	1915	520	....	....
....	1914	400	....	....
WILLYS-KNIGHT—				
84	1916	775	....	....

Dallas				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
COLE—				
....	1914	350	....	....
HUDSON—				
....	1915	350	....	....
OAKLAND—				
....	1915	200	....	....
OVERLAND—				
86	1915	400	....	....
....	1915	250	....	....

DALLAS—Continued				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
SAXON—				
4	1915	....	....	250
Denver				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BRISCOE—				
....	1916	475*	....	....
BUICK—				
1-55	1916	....	1100*	....
1325	1914	375	....	....
CADILLAC—				
51	1915	....	1250	....
CHALMERS—				
36	1913	300*	....	....
CHEVROLET—				
490	1916	475*	....	....
DODGE—				
....	1916	625	....	....
....	1915	600*	....	....
FLANDERS—				
....	1912	175	....	....
GRANT—				
....	1915	....	....	500*
MAXWELL—				
25	1916	467*	....	....
OVERLAND—				
86	1916	....	720*	....
83	1916	....	....	305
75	1916	515*	....	450*
82	1915	....	....	505*
79	1914	360*	....	....
PACKARD—				
30	1910	....	550	....
PAIGE—				
6-46	1916	....	1000*	....
STUDEBAKER—				
16-4	1916	....	612*	....
4	1915	....	475*	....
WILLYS-KNIGHT—				
84	1916	725*	....	....

Detroit				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45	1916	600	....	....
C54	1915	....	500	....
B55	1914	....	450	....
C24	1914	375	....	....
CADILLAC—				
51	1916	....	900*	....
CHALMERS—				
MS	1916	....	500	....
6-40	1916	....	700**	....
6-30	1915	425	....	....
CHANDLER—				
....	1917	....	950*	....
....	1916	....	750*	....
....	1915	....	600*	....
CHEVROLET—				
H4	1916	375	....	....
490	1916	350*	....	....
DODGE—				
....	1917	600*	....	....
....	1916	462*	....	....
....	1915	425	....	....
DORT—				
....	1916	500*	....	....
....	1915	300**	....	....
HUDSON—				
SS	1916	....	1100*	....
6-40	1916	....	600	....
6-40	1915	....	500	....
6-40	1914	....	487	....
HUPMOBILE—				
N	1916	....	650*	....
32	1914	300**	....	....
20	1913	....	....	200
KING—				
E	1916	....	700	....
....	1915	....	400	....
....	1914	350**	....	....
MAY—				
25	1916	....	....	....

Note—One asterisk (*) means Overhaul; two asterisks (**) mean Partial Overhaul.

DETROIT—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
MITCHELL— B245	1916	400	....	....	....
OAKLAND— 34	1916	525**	....	....	....
87	1915	31-	....	....	....
OLDSMOBILE— 43	1916	550	....	....	....
44	1916	775	....	....	....
55	1915	500	....	....	....
42	1915	400	....	....	....
OVERLAND— 83	1916	337	....	....	....
75	1916	350**	....	....	....
80	1915	275**	....	....	....
86	1915	....	500**	....	....
80	1915	325	....	....	....
79	1914	175	....	....	....
PAIGE— 6-46	1916	....	700*	....	....
6-46	1916	....	625**	....	....
6-46	1915	....	500	....	....
....	1914	....	300**	....	....
PEERLESS— 6	1915	....	....	550	....
REO— 6	1916	....	600	....	....
4	1916	....	500	....	....
6	1915	....	500	....	....
4	1914	250	....	....	....
ROSS— 8	1916	....	1000*	....	....
SAXON— 6	1916	425	....	....	....
4	1916	....	....	200	....
6	1915	325	....	....	....
4	1915	....	....	160	....
SCRIPPS-BOOTH— 8	1917	....	....	....	700†
STUDEBAKER— 17-8	1917	625	....	....	....
17-4	1916	....	525**	....	....
6	1915	....	425*	....	....
6	1914	800	....	....	....

†Four-passenger roadster.

Duluth

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—	1914	600	....	....	....
CADILLAC—	1913	....	500	....	....
CASE—	1914	....	600	....	....
CHALMERS—	1913	400	....	....	....
....	1912	300	....	....	....
COLE—	1914	600	....	....	....
DODGE—	1914	500	....	....	....
MAXWELL— 25	1917	525†	....	....	....
....	1916	450	....	....	....
....	1915	300	....	....	....
MITCHELL—	1915	....	900	....	....
OVERLAND— 79	1914	....	....	350	....
PAIGE— 6-46	1916	....	790	....	....
....	1915	....	750	....	....

†Demonstrator.

Fargo

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHALMERS—	1913	450**	....	....	....
METZ—	1916	450†	....	....	....

†Demonstrator.

Hartford

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK— D45	1916	800	....	....	....
D35	1916	500	....	....	....
....	1913	....	....	187	....
CADILLAC—	1914	....	575	....	....
....	1912	387	....	....	....
CHEVROLET— 490	1916	375	....	....	....
DODGE—	1916	550	....	....	....
HUPMOBILE— K	1915	550	....	....	....
32	1913	275	....	....	....
JEFFERY— 6	1915	625	....	....	....
4	1914	400	....	....	....
LOCOMOBILE— 6-48	1915	....	1400	....	....
MAXWELL— 25	1916	425	....	....	....
METZ—	1915	275	....	....	....
OAKLAND— 32	1916	600	....	....	....

HARTFORD—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
OVERLAND—					
75	1916	....	....	400	....
83	1915	425	....	....	....
....	1914	350	....	....	....
....	1912	130	....	....	....
REGAL—					
....	1913	275	....	....	....
REO—					
4	1916	600	....	550	....
6	1915	585	....	....	....
4	1914	350	....	....	....
4	1912	175	....	....	....
VELIE—					
4	1916	800	....	....	....
Indianapolis					
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CADILLAC—					
....	1913	650*	....	....	....
DODGE—					
....	1917	775	....	....	....
DORT—					
....	1916	360	....	....	....
HAYNES—					
33	1915	....	800**	....	....
28	1914	450**	....	....	....
HUDSON—					
SS	1916	....	1200**	....	....
HUPMOBILE—					
N	1916	775	....	....	....
KING—					
B	1913	350**	....	....	....
MAXWELL—					
25	1916	500	....	....	....
25	1915	280**	....	....	....
METZ—					
....	1917	450	....	....	....
OAKLAND—					
32	1916	625	....	....	....
OVERLAND—					
75	1916	450**	....	450**	....
REO—					
....	1911	230	....	....	....
STUDEBAKER—					
6	1915	....	550**	....	....
....	1913	225	....	....	....

Kansas City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE— B	1916	450**	....	....	....
BUICK— B36	1915	....	....	600*	....
CADILLAC— 51	1915	....	1200*	....	....
....	1913	525	....	....	....
CHALMERS—	1916	750*	....	....	....
....	1915	....	500*	....	....
DODGE—	1916	550	....	....	....
FRANKLIN— 6	1915	1600	....	....	....
GRANT—	1917	600	....	....	....
HUDSON— 6-40	1915	....	800	....	....
HUPMOBILE—	1913	....	....	175	....
KING— E	1916	....	1075	....	....
KRIT—	1914	300*	....	....	....
MARMON—	1912	....	....	175	....
MAXWELL—	1916	425**	....	....	....
MOON—	1913	200	....	....	....
OAKLAND—	1915	475	....	....	....
OVERLAND— 83	1916	500*	....	....	....
75	1916	450*	....	....	....
....	1915	200	....	....	....
PAIGE—	1912	125	....	....	....
PULLMAN—	1916	300	....	....	....
REO—	1915	508	....	....	....
....	1912	225	....	....	....
SAXON— S	1916	700*	....	....	....
4	1916	....	....	275	....
STUDEBAKER— 17-6	1916	....	....	....	1000*
6	1914	....	400	....	....
....	1913	160	....	....	....
Louisville					
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
DODGE—	1915	550	....	....	....
HUDSON— SS	1916	....	1300	....	....
54	1914	....	500*	....	....
M'FARLAN—	1915	....	650	....	....

LOUISVILLE—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
REO— R	1914	360	....	....	....
STUDEBAKER— 6	1915	....	635	....	....
VELIE—	1914	....	....	300	....
Milwaukee					
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CADILLAC—	1913	650*	....	....	....
CHEVROLET— H2	1915	....	....	435**	....
DODGE—	1916	650*	....	....	....
....	1915	565*	....	....	....
....	1915	625*†	....	....	....
DORT—	1915	365	....	....	....
PACKARD— 30	1910	....	235	....	....
PULLMAN—	1915	500**	....	....	....
STUDEBAKER— 4	1915	425**	....	....	....
†Winter top.					
Minneapolis					
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK— D44	1916	....	....	550	....
B37	1914	450	....	....	....
....	1913	225	....	225	....
CADILLAC—	1912	375	....	....	....
CHALMERS— 6-30	1917	950	....	....	....
35	1916	800**	....	....	....
30	1911	250	....	....	....
CHEVROLET— H4	1916	450	....	....	....
H2	1915	385	....	....	....
H2	1914	325	....	....	....
DODGE—	1915	650**	....	....	....
....	1915	500**	....	....	....
....	1915	425	....	....	....
DORT—	1916	650	....	....	....
HUDSON— SS	1917	....	1500	....	....
SS	1916	....	1100	....	....
6-40	1916	....	800	800	....
HUPMOBILE— N	1916	950	....	....	....
MAXWELL— 25	1917	625	....	....	....
OLDSMOBILE—	1912	350	....	....	....
OVERLAND— 85	1917	800	....	....	....
80	1915	....	....	450*	....
79	1915	375	....	....	....
....	1912	....	....	300	....
REO— R	1914	450	....	....	....
SAXON— 14	1916	....	....	275	....
STUDEBAKER— 16-4	1916	....	650	....	....
4	1915	....	475	....	....
WILLYS-KNIGHT— 84	1916	850	....	....	....
New York					
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK— D45	1916	....	725	....	....
CADILLAC—	1914	400	....	....	....
CHALMERS— 26B	1915	445	....	....	....
....	1913	200	....	....	....
CHEVROLET— H4	1916	....	....	425	....
COLE—	1915	....	450	....	....
DODGE—	1916	550*	....	....	....
....	1915	425*	....	....	....
HUDSON— SS	1916	....	1250*	....	....
6-40	1916	....	800*	....	....
6-40	1915	....	550*	....	....
HUPMOBILE— N	1916	850*	....	....	....
K	1915	550*	....	....	....
32	1913	....	....	800*	....
JEFFERY— 4	1916	700	....	....	....
KING— E	1916	....	1020	....	....
D	1916	750	....	....	....
C	1914	475	....	....	....
LIBERTY—	1917	750	....	....	....
MAXWELL—	1917	450	....	....	....
....	1916	375	....	....	....
....	1912	150	....	....	....

Note—One asterisk (*) means Overhaul; two asterisks (**) mean Partial Overhaul.

NEW YORK—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
MERCER—					
.....	1914	650	....	....	....
MITCHELL—					
.....	1916	....	....	600	....
.....	1915	385	....	....	....
MOON—					
.....	1915	575	....	....	....
OAKLAND—					
32	1916	575	....	....	....
OLDSMOBILE—					
44	1916	750	....	....	....
43	1915	650	....	....	....
42	1915	475	....	....	....
OVERLAND—					
83	1916	350	....	....	....
83	1916	460*	....	....	....
83B	1916	475*	....	....	....
75	1916	430*	....	....	....
86	1916	750*	....	....	....
.....	1914	200	....	....	....
PAIGE—					
6-46	1916	....	800	....	....
6-36	1916	550	....	....	....
6-46	1915	....	657	....	....
POPE-HARTFORD—					
.....	1913	....	225	....	....
REO—					
6	1916	....	775*	....	....
4	1916	550*	....	550*	....
SAXON—					
S	1916	495	....	....	....
4	1916	....	....	250	....
STUDEBAKER—					
16-6	1916	....	695	....	....
6	1915	....	475	....	....
4	1915	....	450	....	....
4	1914	....	325	....	....
6	1913	....	150	....	....

Oklahoma City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
C25	1915	450	....	....	....
.....	1911	250	....	....	....
CADILLAC—					
.....	1914	550	....	....	....
CHALMERS—					
6-40	1916	800	....	....	....
HUDSON—					
.....	1915	....	600	....	....
MAXWELL—					
.....	1917	500	....	....	....
.....	1916	450	....	....	....
OVERLAND—					
75	1916	500	....	....	....
69	1913	150	....	....	....
SAXON—					
.....	1916	550	....	....	....
STUDEBAKER—					
4	1916	....	750	....	....
4	1914	350	....	....	....
4	1913	200	....	....	....

Omaha

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
APPERSON—					
4-46	1913	275	....	....	....
CADILLAC—					
53	1916	1450	....	....	....
CASE—					
.....	1916	....	750	....	....
KISSEL—					
4-36	1915	600	....	....	....
MITCHELL—					
.....	1915	550	....	....	....
OAKLAND—					
.....	1912	200	....	....	....
OVERLAND—					
83	1916	....	....	500	....
79	1914	100	....	....	....
PATHFINDER—					
80	1916	....	900*	....	....
REGAL—					
.....	1915	200	....	....	....
STUDEBAKER—					
4	1914	....	....	150	....

Peoria

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CHEVROLET—					
H4	1916	475*	....	....	....
DODGE—					
.....	1916	600*	....	....	....
.....	1915	500*	....	....	....
HUPMOBILE—					
N	1916	375*	....	....	....
K	1915	750*	....	....	....
HA	1914	525*	....	....	....
H	1913	300*	....	....	....
C	1910	....	....	150*	....
MAXWELL—					
.....	1913	200	....	....	....
REO—					
R	1915	500	....	....	....

Philadelphia

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D55	1916	700	....	....	....
D45	1916	750	....	....	....
C24	1915	....	....	350	....
31	1912	200	....	....	....
CADILLAC—					
.....	1914	....	475	....	....
.....	1912	425	....	....	....
.....	1911	150	....	....	....
CRAWFORD—					
.....	1915	....	....	100	....
DODGE—					
.....	1915	420	....	....	....
FRANKLIN—					
.....	1917	....	....	1873	....
.....	1913	....	....	650	....
MERCER—					
.....	1913	463	....	....	....
MITCHELL—					
.....	1916	600	....	....	....
OAKLAND—					
.....	1916	400	....	....	....
.....	1913	....	....	235**	....
OLDSMOBILE—					
43	1916	750**	....	....	....
43	1916	675	....	....	....
44	1916	850	....	....	....
OVERLAND—					
86	1916	....	750	....	....
83B	1916	525	....	....	....
83A	1916	475	....	....	....
69	1916	375	....	....	....
79	1914	225	....	....	....
PAIGE—					
6-46	1917	....	950	....	....
6-46	1916	750	950	....	....
SCRIPPS-BOOTH—					
.....	1916	....	....	425	....
STEVENSON-DUHYEA—					
.....	1912	200	....	....	....
WILLIS-KNIGHT—					
84	1916	700	....	....	....

Pittsburgh

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
ALLEN—					
.....	1915	275	....	....	....
CADILLAC—					
53	1916	....	....	1500	....
.....	1914	450	....	....	....
CHALMERS—					
6-30	1916	625	....	....	....
24	1914	650	....	....	....
CHANDLER—					
.....	1917	....	1000*	....	....
.....	1916	....	950**	....	....
CHEVROLET—					
H2	1916	295	....	....	....
DODGE—					
.....	1916	500	....	....	....
ELGIN—					
.....	1916	675	....	....	....
HUDSON—					
6-40	1916	....	550	....	....
KING—					
E	1916	....	1100*	....	....
C	1915	375	....	....	....
MAXWELL—					
.....	1916	400	....	....	....
MITCHELL—					
.....	1916	....	750	....	....
OLDSMOBILE—					
43	1915	600	....	....	....
OVERLAND—					
81	1915	325	....	....	....
79	1914	....	....	300	....
PAIGE—					
6-46	1916	800	....	....	....
25	1915	300**	....	....	....
PULLMAN—					
.....	1916	367	....	....	....
REO—					
R	1916	650	....	....	....
R	1915	550	....	....	....
SAXON—					
S2	1916	....	....	550	....
STUDEBAKER—					
17-6	1917	....	....	850	....
17-4	1917	....	750	....	750
4	1915	425	....	....	....
4	1914	365	....	....	....
STUTZ—					
4C	1916	....	....	1500**†	....
WESTCOTT—					
51	1916	....	....	....	850
†Four-passenger roadster.					

Providence

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BUICK—					
D45	1916	775	....	....	....
CHANDLER—					
.....	1917	....	1050**	....	....
COLE—					
.....	1917	....	1250	....	....
DODGE—					
.....	1916	550	....	....	....
.....	1915	450	....	....	....
HAYNES—					
37	1916	....	1200**	....	....

PROVIDENCE—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
MAXWELL—					
.....	1916	525*	....	....	....
OLDSMOBILE—					
44	1916	800	....	....	....
43	1916	750	....	....	....
STUDEBAKER—					
.....	1914	....	320**	....	....

St. Louis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
CADILLAC—					
53	1916	....	1200	....	....
.....	1914	400	....	....	....
.....	1912	....	200	....	....
CHALMERS—					
6-40	1916	....	700	....	....
DODGE—					
.....	1916	625*	....	....	....
.....	1915	450	....	....	....
HUDSON—					
6-54	1916	....	975*	....	....
6-40	1915	....	850*	....	....
6-40	1914	....	750*	....	....
HUPMOBILE—					
N	1916	950*	....	....	....
32	1914	600*	....	....	....
KING—					
.....	1915	600*	....	....	....
OVERLAND—					
80	1915	350	....	....	....
PAIGE—					
6-46	1916	850*	....	....	....
4-36	1915	450**	....	....	....
REO—					
6	1916	....	800*	....	....
4	1914	450*	....	....	....
STUDEBAKER—					
17-6	1916	....	....	....	500*
6	1915	....	550	....	....
4	1914	....	450**	....	....

San Francisco

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	3-pas rdstr
BRISCOE—					
.....	1915	300	....	....	....
BUICK—					
C37	1915	600*	....	....	....
CADILLAC—					
.....	1915	....	....	800	....
.....	1914	....	900**	....	....
.....	1913	650	....	....	....
CHEVROLET—					
H2	1916	500*	....	....	....
DODGE—					
.....	1915	550*	....	....	....
E.M.F.—					
.....	1910	....	....	60*	....
FRANKLIN—					
8	1916	1500**	....	....	....

Adaptability Marks United Tractor

Six-ton Capacity—Any Horse-drawn Vehicle Readily Attached—Separate Rear Springs for Supporting Chassis and Trailer Load

THE six-ton tractor, which sells for \$2,490, and is made by the United Motors Co., Grand Rapids, Mich., has two features of more than passing interest: A fifth wheel platform which makes it easy to apply any kind of a trailer load, and independent rear springs for carrying the trailer load.

The trailer platform or rocking fifth wheel is built up of substantial angle iron heavily reinforced, and the support for the fifth wheel is a sheet of boiler plate, this construction making it easy to use any diameter of fifth wheel. Thus it is a simple matter to attach any horse-drawn vehicle.

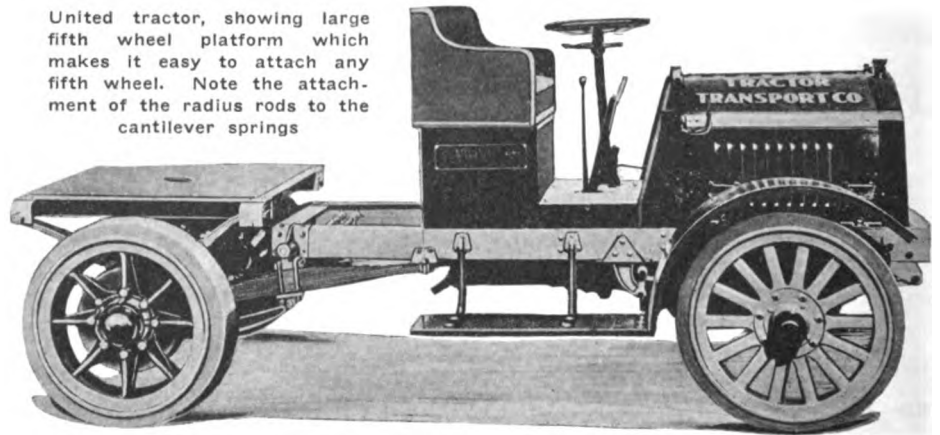
The hole for the king pin is in the center of the plate, and beneath it there is provision to take the thrust and to insert the locking device to prevent the withdrawal of the pin while the tractor is in use.

Forty per cent of the pay load is carried on the rocking trailer platform, which is supported on heavy half-elliptic springs. The tractor chassis is not suspended on these springs but on a set of cantilevers.

The driving stress is transmitted from the wheels to the frame by radius rods which run from the under side of the spring seats, which support the trailer platform, to the spring clips at the center of the cantilevers.

The rear axle is a Torbenson internal gear drive, the weight being carried on a solid axle and the driving being done

United tractor, showing large fifth wheel platform which makes it easy to attach any fifth wheel. Note the attachment of the radius rods to the cantilever springs



through pinions which mesh with internal gears bolted to the wheels. The differential housing is carried on the dead axle. The reduction is 9 to 1.

The engine is a Buda, $4\frac{1}{4} \times 5\frac{1}{2}$ L-head four, with a three-bearing crankshaft, a splash-pressure oiling system and pump cooling. Ignition is by Bosch magneto. A four-speed gearbox with nickel steel gears and splined shafts mounted on ball bearings is provided.

Solid rubber tires are fitted front and rear, the front being $34 \times 3\frac{1}{2}$, and the rear 34×7 .

The company is planning to manufacture 200 per month, and is building a 60 x 400-ft. addition to assemble the tractors in.

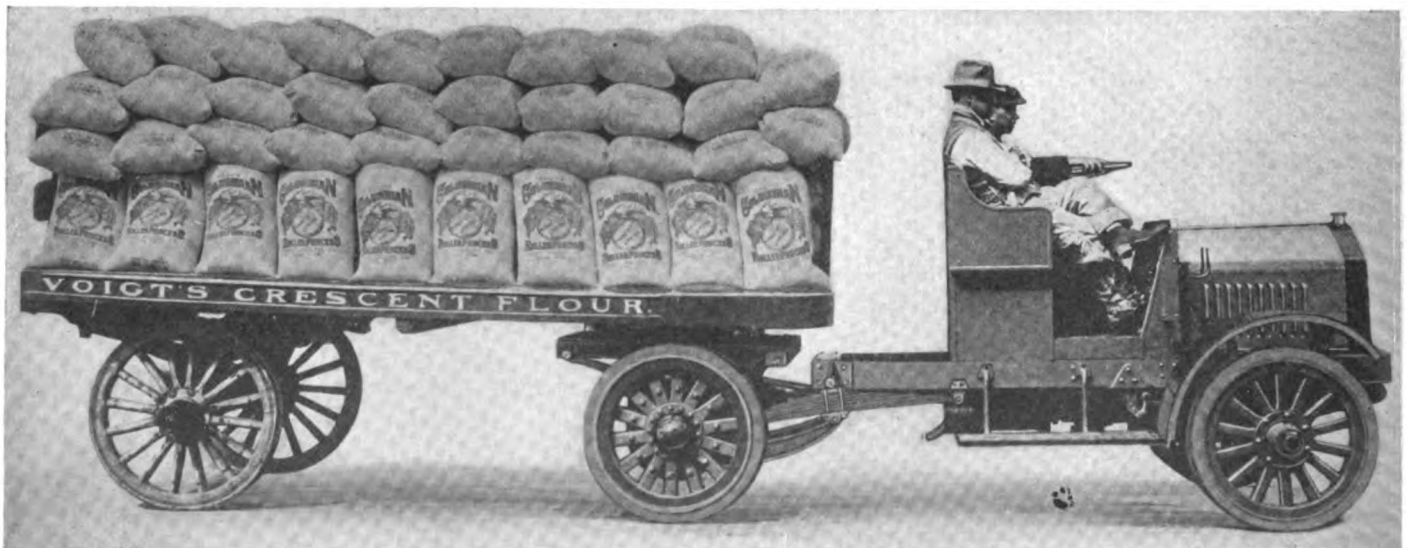
part of the territory west of the Mississippi. H. B. Swaab will work with Goodfellow from headquarters in Indianapolis and will handle the State of Indiana except South Bend and Michigan City, Kentucky and Ohio except Cleveland, Canton, Toledo and Akron and including Columbus, Cincinnati and Dayton. H. L. Dunbar, with headquarters in Chicago, will cover Illinois, Wisconsin, Minnesota, North and South Dakota, Nebraska, Iowa, Kansas, Missouri, the northwestern corner of Indiana, including South Bend and Michigan City. L. M. Watkin will cover Eastern territory, with headquarters in Philadelphia.

Coast Office for S K F

SAN FRANCISCO, May 7—In order to more readily supply the rapidly increasing demand for S K F bearings on the Pacific Coast, the S K F Ball Bearing Co., of California, Inc., has been organized. The main office, under the direction of A. M. MacLaren, has been opened in San Francisco at 341 Larkin Street.

Standard Roller Bearing Changes

PHILADELPHIA, May 7—The Standard Roller Bearing Co. has made a number of changes in the personnel of its organization. A. M. Goodfellow has been appointed Western sales manager, with headquarters in Detroit. His territory will include the Middle West and



United tractor hauling a heavily loaded wagon which originally was designed to be drawn by horses

Whole Industry Up in Arms Over Proposed 5% Tax

Factories and Dealers Unite to Fight Measure Which Is Grossly Unfair and Unconstitutional

NEW YORK, May 7—From all over the country and from every section of the motor car industry has gone up a storm of protest over the proposal of the Government to tax motor cars 5 per cent at the factories. Such a tax is considered grossly unfair. Factory officials and dealers look upon it as class legislation pure and simple, and it is hinted that even should the measure go through it would be declared unconstitutional on this ground. The industry has united in a solid phalanx to fight the proposal.

Two principal reasons are set forth as to why such a tax should not be levied at this time. They are:

1—*The Government has no right under the Constitution to tax one industry and not others.*

2—*It is poor policy to attempt to place class legislation burdens on an industry at a time when for various reasons it gives indication of depression and slackening such as the motor car industry does today.*

The attitude of the factories is well set forth in a pamphlet which has just been prepared by General Manager Alfred Reeves of the National Automobile Chamber of Commerce. This is being sent to all members of Congress. It follows:

FACTS REGARDING AUTOMOBILE TAXATION

To the Members of Congress:

Automobile manufacturers, without exception, desire to pay their full fair proportion of the government's expense. They want to be taxed fully and in proportion to all other industries.

They do object to having double taxation imposed upon them, or any form of taxation that may put dozens of them out of business.

There are 450 automobile makers in the United States of which 12 makers produce 80 per cent and 438 produce 20 per cent of the whole. The 12 have been prosperous while the bulk of the others are able to exist only in good times. The prosperity is due to increasing volume, the reverse occurs when the volume shrinks.

Since war was declared the volume of sales has been seriously affected. This condition continued will change the volume and hence the profits.

To further and individually tax an industry with such a condition existing is unfair and unjust. Such a tax would have to be absorbed by the maker. Any advance on a declining market would further restrict sales and hence volume.

This condition would most seriously affect the small and the financially weak companies.

This industry has been obliged to increase

its costs for labor 25 per cent and material more, as indicated in the appended list. These costs have been overcome to some degree only by the great volume.

These increases were:

Sheet aluminum	40%
Steel castings	30%
Bearings	55%
Aluminum castings	50%
Leather	30%
Stampings	45%
Sheet steel	65%
Tungsten steel	400%
Steel tubing	40%
Iron castings	35%
Forgings	75%

The automobile industry comprises approximately 450 manufacturers and 825 makers of parts and accessories. There are 25,924 dealers and 23,686 garages throughout the country, all depending on the products of the makers of motor cars.

Few of the 450 manufacturers are, we believe, averaging to exceed 12 per cent profit on their turnover. The 5 per cent tax would, therefore, take 5/12 of their profits (assuming the tax cannot be passed on to the consumer) which would equal 5/12 or 41.6 per cent of the profits of the trade as a whole. It would be the equivalent of a tax of 41.6 per cent on entire net profits.

The 5 per cent tax cannot generally be passed on to the consumer. It is impossible to advance prices on a falling market. Very few manufacturers after paying this 5 per cent tax would have anything to pay under the excess profits tax. Their profits remaining, if any, would be less than 8 per cent of their investment.

The official reports show names of more than 600 automobile manufacturers that have failed during the past five years.

We believe that not more than one-half of our automobile manufacturers are breaking even. Few are making in excess of 10 per cent on their turn over.

Material costs have gone up and are going up enormously.

Prices have been driven to absolute top notch by high material and labor costs.

Profits are probably not more than three-fourths what they were a year ago.

During the past year, excluding Ford, 80 per cent or four-fifths of all new cars were sold to people who already owned cars and traded them in. If the 5 per cent tax is imposed, these people will largely keep their old cars instead of replacing them with new. Manufacturers will suffer seriously in their sales and the government's proposed revenue from excess profits taxation will not materialize.

The automobile business has already suffered curtailment through the declaration of war. Several thousand men have already been released from employment.

People will not freely buy automobiles in war times, or under heavy tax conditions.

Manufacturers have already begun to curtail output, which means manufacturing costs will go up inevitably. Reduction of output does not correspondingly save overhead, which, next to material, is the largest element entering into the manufacture of cars and trucks.

We offer our services to supply further information and details regarding the statements made herein.

NATIONAL AUTOMOBILE CHAMBER OF COMMERCE, Inc.

ALFRED REEVES,
General Manager.

New York, May 3, 1917.

Practically every dealer organization in the country has taken steps to fight the tax and the Motor & Accessory Manufacturers' Association is urging its members to exert every influence against it.

Factories are quite willing to pay their

share of the expense of the Government in carrying on the war, but they believe that such a tax as proposed would be nothing short of confiscatory in effect. It is pointed out that if Ford is excluded fully 80 per cent of all new cars sold involve the trade-in of an old one. And it is feared that with such a tax on new cars present owners of cars would hesitate to make new purchases and would be inclined to make their old cars last another year.

It has been advanced by exponents that factories might pass this 5 per cent tax along to purchasers. But just how difficult this would be is made plain by the preceding paragraph.

To Fight 5 Per Cent Tax

BOSTON, May 5—The Boston Automobile Dealers Association and the Boston Commercial Vehicle Dealers Association will hold a joint meeting next week at which action will be taken on the proposed 5 per cent tax on motor vehicles at the factories as proposed by Congress. The advisability of sending a committee to Washington will be considered, for while there will be no hearings the men could talk to the Senators and Representatives before the bill came up for a vote. It is possible that any committee selected may ask that men from Maine, New Hampshire, Vermont, Rhode Island and Connecticut join them to make the protest all the more stronger. Two years ago when a tax was proposed a committee comprising J. W. Maguire of the Pierce Arrow, John H. Johnson of the Buick and Joseph S. Donovan of the Studebaker went to Washington and aided materially in stopping the measure.

Minneapolis Enters Fight

MINNEAPOLIS, May 7—The Minneapolis Automobile Trade Association is protesting any proposed tax on automobiles for war revenue purposes. It has telegraphed every other trade association the burden of the protest, asked 400 country dealers in the Northwest to telegraph to Congressmen and Senators, and has done the same to Minnesota members of Congress. The tax of 5 per cent on the price of cars has aroused the association as calculated to deter people from buying new cars and on the basis that the tax will ultimately come out of the pocket of the purchaser.

Predicts Business Boom

INDIANAPOLIS, May 7—J. C. Flow-ers, president of the Premier Motor Corporation, has just made public an interview in which he expresses the firm belief that the country's entrance into the European war will prove beneficial to the automobile industry. He said:

"I feel that the war will tend to increase business rather than to depress it. Large manufacturing orders from the government and greatly increased orders from our Allies, due to their greatly increased purchasing power, as a result of the American loan, will put stupendous sums into circulation and this money must find its way into the pockets of the public. The war will stimulate all American industry greatly, and thereby make the entire country more prosperous, which means a healthier status for the motor car industry."

Deliveries Only Worry of Kansas City Trade

Temporary Uneasiness as to Volume Has Disappeared—But Cars and Tractors Are Not Coming In

KANSAS CITY, May 7—Kansas City dealers in motor cars, tractors, farm equipment and accessories are worrying about only one thing now—and that is deliveries. The temporary uneasiness as to volume of business has practically disappeared. Firms which were far behind with orders are somewhat less aggressive, in many cases going after new business; and most firms are able to enforce regulations. While dealers are not going so far as to designate whether a prospective purchaser ought to have a car or not, the situation is working out that way—the men who really need cars are getting them first.

The tractor phase is the most serious. Kansas City is short of tractors that ought to be delivered within a few weeks—many of them ought to be in the fields now, after the recent heavy rains. One firm—the next to the largest in the tractor business—is fifty behind in its orders.

It is imperative that large increase in the production of tractors be made, to supply the demand for plowing in July and August, immediately following the wheat harvest.

The demand is already being accelerated by the educational campaign of the Kansas City Tractor Club, which has worked so far chiefly among bankers, urging them to encourage the intensive farming methods that go with tractors. Many bankers have responded that they are taking up the work in their districts. The Tractor Club will carry this educational work to all classes of business men in the farming communities, and to the farmers themselves, in preparation for an increased production next year.

Governor Sleeper Objects to Proposed 5 Per Cent Tax

DETROIT, May 7—Governor Sleeper has telegraphed to every Michigan member of Congress a request that he protest most vigorously against the proposed 5 per cent tax on automobile purchase prices and has requested Congressman Fordney, a member of the House Ways and Means Committee, to make a minority report. This action followed a conference between the governor and R. E. Olds, president of the Reo Motor Car Co., Lansing. Mr. Olds stated that a 5 per cent tax on the purchase price was a 40 per cent tax on profit and would mean the closing of many factories and the curtailment of work in many others. He also pointed out that Henry Ford was the only automobile maker in Michigan who would not be hit by the tax. Ford, according to Mr. Olds, has in his contracts

for this year a clause which makes all government taxes payable by the agent and not by the maker.

J-M Accessories to New Rochelle

NEW YORK, May 7—The H. W. Johns-Manville Co. will concentrate its automobile accessory manufacturing in New Rochelle, where it is at present manufacturing its speedometers in the old Jones Speedometer Co. plant. The automobile accessory plant will be moved from Brooklyn. To take care of this concentration, the company is erecting a large four-story addition, giving it 75,000 sq. ft. additional space.

Prest-O-Lite Re-elects Directors

NEW YORK, May 7—The Prest-O-Lite Co., at to-day's stockholders' meeting, re-elected its seven directors, as follows: C. J. Fisher, J. E. Allison, F. E. Sweet, J. M. Noble, S. M. Cooley, Harry Murphy, and M. J. Carmey.

Packard Salesmen Hard at It

DETROIT, May 8—Following is the score of the Lincoln Highway Sweepstakes sales race of the Packard Motor Car Co. on the 59th day:

DIVISION "A"

St. Louis	89	Pittsburgh	66
Cleveland	85	Detroit	66
Philadelphia	72	Chicago	62
New York	71	Boston	43
Los Angeles	68		

DIVISION "B"

Atlanta	109	Buffalo	63
Omaha	100	Memphis	60
Seattle	96	Syracuse	57
Toronto	95	Cincinnati	55
Indianapolis	88	Baltimore	52
Rochester	76	Columbus	46
Washington	71	Albany	40
San Francisco	70	St. Paul	17

DIVISION "C"

Youngstown	150	Portland	55
Fort Worth	133	Salt Lake City	50
San Antonio	125	New Orleans	45
Des Moines	121	Dallas	37
Montreal	120	Columbia	33
Honolulu	120	Nashville	33
Toledo	110	Birmingham	26
Denver	95	Bradford	25
Louisville	91	St. Johnsbury	22
Davenport	87	Chattanooga	20
Scranton	86	Binghamton	20
Spokane	75	El Paso	16
Savannah	75	Houston	12
Colorado Springs	71		

DIVISION "D"

Phoenix	366	Charlotte	66
Texarkana	233	Quincy	60
Ft. Wayne	233	Wilmington	60
Jaglnaw	150	Helena	50
Ardmore	133	Jacksonville	40
Altoona	133	Charleston, W. Va.	40
Elmira	100	Walla Walla	33
Aberdeen	100	Marietta	33
Rutland	100	Amherst	33
Fairmont	100	Lima	33
Idaho Falls	100	Albuquerque	33
Knoxville	100	Jamestown	33
Evansville	75	Marquette	33
Mobile	66	Bramwell	25
Sioux Falls	66	Shreveport	20
Hastings	66	Utica	20
Butte	66		

Will Relieve Dealers of License Borrowing

Hewitt Bill, Signed by Governor, Restricts Use of Dealers' Plates by Owners—5 Sets to Dealers

NEW YORK, May 7—After long-drawn-out conferences between sponsors of the bill and dealers throughout the state, the legislature in Albany has at length passed the Hewitt bill and it has been signed by the Governor; it becomes effective February, 1918. The measure has the approval of dealers.

The measure has to do entirely with the issuance of license plates to dealers and their use of them. The salient features of the new measure follow:

Annual fee of \$15 for dealers with a charge of \$5 for each additional set of plates. (Additional plates now cost \$2.50.)

Limits the number of plates to each dealer to 5 sets including the original set and permits application for additional plates to be acted on by the Secretary of State.

Prohibits dealers driving cars with dealers' plates on them for private purposes, for pleasure or for hire.

Permits the issuance of duplicate plates for any that are lost or destroyed, upon the filing of an affidavit.

Limits the use of dealer plates by purchasers of new cars to 5 days instead of 15.

Under the new bill, 1918 dealer plates will indicate on them the number of sets issued to each dealer. For example, the original plate might be M171; additional plates would be numbered M171-2, M171-3, -4, -5. This is being done to assist in the identification of dealer cars which are operated in such a manner as to violate any of the traffic rules, etc.

When purchasers of new cars borrow plates from the dealer, the dealer must file a statement with the Secretary of State giving the date and the name and address of the person to whom the plates were loaned. The owner must also file a statement with the Secretary of State.

White Officers Re-elected

CLEVELAND, May 7—The retiring directors of the White Motor Co. were re-elected at the annual meeting of the stockholders. At the organization meeting of the board of directors, the same organization was continued by the re-election of the present officers of the company. The directors are: M. B. Johnson, Windsor T. White, Walter C. White, E. W. Hulet, A. P. Warner, Otto Miller, J. R. Nutt, J. H. Harding, Theo. Roosevelt, Jr., E. R. Tinker, and A. M. Hall. The officers follow: M. B. Johnson, chairman of the board; Windsor T. White, president; Walter C. White, first vice-president; E. W. Hulet, second vice-president; A. R. Warner, secretary, and Otto Miller, treasurer.

Trailer Manufacture Started by Edgerton

Menhall Heads Company Which Has Bought Two Plants and Will Start Production at Once

EDGERTON, WIS., May 4—The Edgerton Highway Trailer Co., capital stock, \$180,000, perfected its organization to-day by the election of the following officers: President and general manager, James W. Menhall, Beloit, Wis.; vice-president, M. Johnson, of Gisholt Machine Co., Madison, Wis.; secretary, E. Z. Menhall, Beloit; treasurer, A. J. McIntosh, Edgerton; assistant secretary and treasurer, C. A. Florey, Beloit; directors, Frank Pringle, B. Wilson, A. J. McIntosh, C. A. Florey and J. W. Menhall. The company at the same time took possession of the two factories of the Edgerton Wagon Co., purchased for \$12,000, and on May 7 will commence active production of two and four-wheeled trailers, designed and patented by James Menhall, who, until recently, was vice-president of the Warner Auto-Trailer Co., Beloit. Menhall is also said to be ready to manufacture a number of other new motor car specialties, including a "fifth wheel" device, but no information or details are divulged at this time.

Milling Machine Maker Reorganizes

MILWAUKEE, May 5—The Kemp-smith Mfg. Co., maker of the Kemp-smith milling machines, has reorganized and increased the capital stock from \$250,000 to \$300,000. Paul E. Thomas, who has been secretary-treasurer and general manager for 13 years, becomes president and treasurer, continuing as general manager. John Goetz, works manager, has been elected vice-president. Franz Wollaege, Jr., assumes the position of secretary. Peter Lowe, manager of sales and advertising, has been elected assistant secretary. E. E. Leason, manager of purchases, becomes also assistant treasurer. The capacity of the plant has been doubled within the year, but even with these increased facilities, the company's bookings will keep the plant busy at full capacity for more than a year.

Stearns Increases Capital

CLEVELAND, OHIO, May 5—The F. B. Stearns Co. has increased its capital from \$400,000 to \$2,000,000. It is understood that present shareholders will get a stock dividend of 210 per cent, giving them 3.1 shares for every one share now held. There will still remain a surplus after this distribution, as the company has been husbanding its resources over a long period of years. There will be \$750,000 of the new stock sold to take care of an expansion program. Of this \$500,000 will be preferred and \$250,000 common, present interests in the company taking the larger part of it. The F. B. Stearns Co. is one of the few pioneer motor manufacturing concerns

that have not increased their capital in proportion to the growth of the business. The present financing is in the form of a distribution of long accumulated surplus together with provision for a contemplated large expansion.

New Doble Company With \$1,000,000 Capital

DETROIT, May 8 (Special to Motor World)—The Doble-Detroit Steam Motor Co. has been formed with a capital of \$1,000,000 to manufacture and market the Doble steam car. The General Engineering Corp. remains a separate unit and will continue as an engineering concern to handle all the engineering work. The new company will be the only one with the right to use the name Doble in its name or on its products, though other concerns may be licensed under the Doble patents to use the Doble power plant. The names of the officers of the company have not been divulged, though it is understood they are prominent men. More than 1100 dealers are already included in the Doble dealer organization, and these have contracted for \$12,000,000 worth of cars.

TRUCK, TRACTOR AND AEROPLANE IN DEALER'S REACH

(Continued from page 36)

that a garageman or a repairman with a faulty motor or generator can easily put on a new one out of stock without machine work and in the minimum of time. The same applies largely to the ignition distributor mounting.

Another matter upon which the Standards Committee is working, and which if brought to a successful conclusion will be of immense aid to the dealer, garageman and repairman, is the standardization of poppet valves for engines. Here again, as in every other part of the motor car, there has been an immense amount of variety. It is now recommended that there be but 15 standard sizes of valves to fit all sizes and types of motors. The recommendation provides for a valve with a seat angle of 45 degrees and there is to be a slot in the top for grinding in. This, in itself, will simplify repair jobs by reducing the number of tools required to a screw-driver bit.

Still another matter which eventually will be standardized and on which the committee is working is the size and shape of storage batteries. With a standard size and shape in use this would mean interchangeability and would further reduce the work of the repairman and stock of the supplyman.

Ball and roller bearings which already are fairly well standardized are to be further standardized. The Ball and Roller Bearings Division has submitted a report recommending certain metric sizes. Likely these will come in for considerable use in aeroplane work and probably for use in other branches of the automobile industry.

One example of how closely the so-

More Gasoline Pumps Coming from Indiana

Shotwell Pump & Tank Co. Will Make Oil and Fuel Storage Systems—Well-Known Backers

INDIANAPOLIS, May 7—The Shotwell Pump & Tank Company has been organized here to manufacture pumps and underground tanks for the handling of gasoline and oils. Charles W. Shotwell, an Indianapolis business man, is president. He was formerly connected with the Fairbanks-Morse Co. Other officers are R. W. Murphy, treasurer; F. B. Fowler, secretary; B. P. Benritze, production manager; T. R. Lewis, H. M. Moore, H. E. Kinney, and J. H. McConnell, formerly of the S. F. Bowser Co., of Fort Wayne, who will serve as sales manager.

ciety is working with the Government is revealed in its recommendations regarding tire and rim sizes for military motor trucks. The Tire and Rim Division has recommended a standard form of fitting for military trucks of 1½ and 3-ton capacity. The design permits tires of all sizes called for in Government specifications to be attached to wheels with the minimum number of parts. The inside and outside flanges are the same, all the wedges are identical and the bolts can be put in either way around, etc.

The society has also now definitely adopted a table of standard inflation pressures for pneumatic tires. It follows:

Section, in.	Load, lb.	Pressure, lb.
3	375	45
3½	570	55
4	815	65
4½	1,100	75
5	1,300	80
5½	1,700	85
6	2,000	90

Not the least important of the various standards recommended is that of the Research Division, which after 2 years of unremitting work has drawn up a proposed standard method of making tests of a whole car.

The recommendation provides that such tests shall be made on a speedway or other prepared course where the average grade does not exceed 3 per cent, and that all tests must be made between sunrise and sunset of the same day. The wind velocity must not exceed 15 m.p.h. In fuel economy runs at least 2 lb. of fuel must be consumed and a series of 9 runs made at specified speeds varying from 9-11 to 63-70 m.p.h. Acceleration tests must also be made at specified speeds and for specified distances.

In short, it is the purpose of the standard to obtain a set of figures for any car on test which will have a standard fixed value as compared with similar figures made in another test on another car.

Farm Tractors Needed Urgently in Nebraska

Winter Wheat Crop Gone, Scarcity of Implements and Re-seeding Need Magnify Shortage

OMAHA, NEB., May 7—With the loss of the winter wheat crop through a cold, dry winter over this territory; with a shortage of farm implements for the season already indicated; with the freight car situation showing little, if any, betterment; and with the growing effort to plant and harvest a maximum crop on account of war conditions, the tractor situation here is one of pronounced activity.

The winter wheat crop remaining unharmed is so small as to be virtually negligible. Experts of the Department of Agriculture were early on the ground, however, and reseeded and planting of other crops was strongly urged. The farmers have responded vigorously, and with snow and rain amounting to about 2 in. during the past week, their spirits have been materially raised, and the work of seeding is in rapid progress.

Shortage of feed, however, together with partial depletion of the workhorse supply through sales to the Allies, has brought the farmers face to face with still further problems to which the tractor seems the only solution. The demand for farm tractors has risen tremendously as a consequence. But the demand cannot be fully supplied, it would appear.

There are approximately twenty dealers and distributors of tractors in Omaha and Lincoln, Neb., the two real distributing centers of this territory. All of them complain that they are hampered in deliveries by the freight car shortage, and somewhat also by factory output, but with the latter evil the lesser of the two.

The shortness of time left in which to reseed means that the farmers must use every available moment of the day, and even of the night, if possible, to the work of planting. Lack of horses, lack of feed for such as there are, and the shortness of time has caused the farmers to work their tractors 15 to 18 hours a day in planting, and to demand many more tractors than can be furnished. They have the money to pay. Their confidence in the harvest has been greatly stimulated by the ample rains and snow of the past week. But the tractor shortage is pronounced.

It is only by virtue of having tractors that they feel that they will be able to plant and harvest even an average crop, without considering the crop which the times demand and for which there will undoubtedly be an ample market next fall and winter.

"But we can't get the tractors," complain the dealers. "We are better off than the motor car dealers, for we can

ship more largely on flat cars than they. But we can't get even enough flat cars."

Crow-Elkhart to Export

ELKHART, IND., May 7—The Crow-Elkhart Motor Co. has established an export department, which will be in charge of Pierre Mass as export manager. The company plans to embark on an extensive merchandising propaganda to place its cars in all foreign markets.

Cassidy Gets Tenion Ring

NEW YORK, May 7—The Edward A. Cassidy Co. hereafter is to handle the Tenion piston ring manufactured by the Du Bois Piston Ring Co. The ring has been on the market for some time under the name of Du Bois.

5000 Moto-Meters a Day

NEW YORK, May 7—The Moto-Meter Co., Inc., Long Island City, is installing new equipment which will make possible a daily production of 5000 Boyce moto-meters. The company has had some difficulty in filling orders quickly owing to tremendous demand. Orders for the past three months exceeded the entire shipments of 1916.

Parts for Lozier Cars

DETROIT, May 8—In the issue of Motor World of April 11, in which a list of concerns furnishing parts for old models of various cars was printed, no mention was made of the fact that the Lozier Motor Co. is handling complete service and repair part work for its own previous models. The Lozier Motor Co. of Detroit is dealing directly with this business and has an extensive supply of parts for its past models.

Rhode Island Lets Down Bars

PROVIDENCE, R. I., May 5—Rhode Island has joined the progressive states and let down the bars to visiting motorists. Heretofore visitors have been allowed only 10 days in any one year, the same as New Hampshire, and Rhode Islanders found that when they went elsewhere their privileges were being curtailed. Now the restrictions are gone and an effort will be made to liberalize New Hampshire.

More Makers Change Prices

NEW YORK, May 7—Simplex has raised the price of its chassis from \$6,000 to \$7,000, making it by far the most expensive car at present manufactured in the United States. Other recent price changes not previously published are given below:

Car and Model	Old Price	New Price
Mitchell, D-40 2-Pas.	\$1,150	\$1,195
Mitchell, D-40 5-Pas.	1,150	1,195
Stephens, 60-65 2-Pas.	1,150	1,250
Stephens, 60-65 5-Pas.	1,150	1,250
KisselKar, 6-42, 5-Pas.	1,700	1,750
KisselKar, 6-42 Sedan.	2,050	2,100
Luverne, 17.	1,500	1,650
Simplex, Chassis.	6,000	7,000
Glide, 6-40 5-Pas.	1,250	1,295
Glide, 6-40 Sedan.	1,450	1,495
Pullman, 2-Pas.	850	910
Malbohm, 2-Pas.	695	795

Portland Dealers Try Appraising Used Cars

Dealer Association Takes Up Plan and Expects It to Work Well—Afraid of Branch Houses

PORTLAND, ORE., May 6—In the hope of solving the second hand car problem, members of the Dealers' Motor Car Association of Oregon, embracing virtually every automobile retail dealer in the Portland territory, have agreed to be guided in their trade-in transactions by a new system of appraisal that has been inaugurated by M. O. Wilkins, president-manager of the association. Under the new arrangement when a prospective purchaser enters the market for a new car the first dealer approached is required to appraise the old car with the assistance of an expert mechanic. The appraisal thus fixed is scheduled to be honored as the trade-in value for a period of 30 days, following which a new appraisal may be made. Whenever a car is offered for trade each dealer must first call up President Wilkins to ascertain whether or not this same car has been recorded already as appraised. As soon as any dealer fixes what he believes to be the market value of the old car he is obliged to notify the association office.

The Portland dealers report that the new system promises to work successfully, and much benefit is anticipated as a result of its adoption. The only objection entered against the plan is the opportunity which it gives branch managers and dealers working under a long commission. Complaint is made that these men, having a wide margin to work on, can place an exorbitant value on the old car and thereby shut other dealers out of competition.

When first instituted the plan called for an official who would be called upon to appraise all of the cars, and it is regarded as likely that this feature will yet be observed.

United Motors Gross Sales

NEW YORK, May 3—In the news item concerning the sales of the United Motors Corp., which appeared in the April 25 issue of Motor World, it was inadvertently stated in the heading that the gross profits exceeded \$23,000,000. This should have been gross sales, as is brought out in the article.

List Republic Stock

NEW YORK, May 4—Application will soon be made by the Republic Motor Truck Co. to list its stock on the Stock Exchange. Earnings for the year ending June 30, 1917, it is estimated, will care for the 7 per cent dividend on the \$1,000,000 of preferred stock and leave more than 20 per cent for the 62,500 shares of the common outstanding without par value.

Changes in Equipment Made in Many Models

Ten Makers Have Slightly Altered Fittings on Cars—Some Have Changed Dimensions

NEW YORK, May 7—The new 6-60 Abbott has a 7N six-cylinder Continental engine, $3\frac{1}{2} \times 5\frac{1}{4}$, Remy ignition, starting and lighting, Stromberg carbureter, dry plate clutch, three-speed gearbox, 122-in. wheelbase and 34×4 straight-side tires. It will be made as a seven-passenger open car at \$1,595, coupe \$2,100, and sedan \$2,150.

The bore of the Chandler has been increased from $3\frac{3}{8}$ to $3\frac{1}{2}$ in., the stroke remaining at 5 in., and the Apperson company has changed the dimensions of its eight from $3\frac{3}{4} \times 5$ to $3\frac{1}{4} \times 5$ in.

The King company has changed its starting and lighting equipment for the first time, the Bijur system now being standard. Remy starting and lighting is now used on the Paige 6-51, and the 6-39 uses a Stromberg carbureter. The Stephens now uses Delco ignition, starting and lighting, and Stromberg carbureter. The Metz has Atwater Kent ignition and Westinghouse starting and lighting, and the Regal 4-32 has Heinze-Springfield starting, lighting and ignition. The Kissel company has changed the size of the tires on the 100-Point Six from 33×4 to 34×4 , and the tires on the Six-42 from 34×4 to $34 \times 4\frac{1}{2}$ in.

The Empire models 50 and 51 have Connecticut ignition and employ a dry plate clutch instead of a cone. The Empire company has issued new model numbers, the four-cylinder model 45 being replaced by model 50 five-passenger touring car, and model 51, a two-passenger roadster on the same chassis, but with wire wheels. The 70 A-6 takes the place of the model 70 six-cylinder, and the 70 S-6 is the same chassis with a sedan body.

The Pullman now uses Atwater Kent ignition and Dyneto starting and lighting.

Weber Has to Make Good

ST. LOUIS, May 7—The Weber Implement & Automobile Co. will give a banquet to its salesforce this week, as a result of a promise of George Weber, president of the company, when the sales force promised to sell 217 cars during April. The sales were 255 cars, including wholesale. The new cars sold were: 9 Nationals, 125 Maxwells and 62 Hupmobiles.

Patterson Heads Hudson-Phillips

ST. LOUIS, May 7—E. O. Patterson, district manager for the Hudson Motor Car Co., recently stationed at Chicago, has been elected president of the Hudson-Phillips Motor Car Co., which the factory recently took over. The present organization will be retained with a few exceptions. One change is the installation of A. J. Carey, of the Hudson factory, as service manager. The retained depart-

ment heads are: George H. Scott, sales manager of the pleasure car department; Frank A. Flint, manager of the truck department; J. H. Gibson of the used car department. The company will retain its truck agencies. J. H. Vette, an accountant from the factory, is temporarily in charge of the offices. John H. Phillips, who retired from the Hudson-Phillips Co., has leased space with the Phillips Motor Co. at Twenty-third and Locust streets, until ready to open a salesroom for the Harroun car.

Several Northwest Dealers in Big Merger

TACOMA, May 7—One of the largest consolidations in Pacific Coast automobile history was completed last week by F. W. Vogler of Portland, Ore., president and founder of the Northwest Auto Co.; W. C. Ruckman, Seattle capitalist and head of the Cole Automobile Co., and George L. Trotter of the George L. Trotter Company. The combination of interests will be known as the United Motors Co., Inc., with Seattle headquarters and is being consummated in order to secure greater efficiency and improved service. The new organization will add the Dort and Cole cars to the Reo and Marmon and Stearns cars already handled.

Chalmers High-Gear Test

BOSTON, May 4—A test was conducted by the Chalmers Motor Co. of New England May 3 and 4. A sedan was driven for 24-hours over the streets of this city, with first and second gears removed. The motor did not stop during the 24 hours. The test was conducted under a sanction from the A. A. A. The car left the salesrooms in Commonwealth Avenue at 8:30 a. m. Thursday and finished at the same place on Friday morning. Seventy-five per cent. of the time was spent in the business district. While no attempt was made at gasoline economy, the sole idea being to test the flexibility of the motor, the clutch and the ability of the motor to get through without a stop, the mileage was 11.9 per gallon. No attempt was made at speed, the desire being at all times to keep well within the speed laws of the city. The mileage was 346.2, an average of 14.4 per hour. Twenty-nine gallons of gas were used. No oil was added. Five pints of water were consumed. One hundred and eighty-eight full stops were made in traffic, and 162 slowdowns which necessitated slipping to clutch to get away were made. The number of persons in the car varied from two to seven. There were no variations from the stock car in the sedan and the clutch came through the test in excellent shape.

Ghent Moves to Ottawa

CHICAGO, May 7—The executive offices of the Ghent Motor Co., including the engineering and purchasing departments, were removed from Chicago to Ottawa, Ill., May 1.

Silver Drops Chalmers to Concentrate on Dort

New York Distributer to Handle Only Smaller Car for Present —Branch for Chalmers

NEW YORK, May 7—The C. T. Silver Motor Co. has discontinued handling the Chalmers car in Metropolitan territory. A Chalmers branch has been established in New York and will handle both wholesale and retail sales in the Metropolitan territory and environs.

For the present the Silver company will concentrate its efforts on the distribution of the Dort. Plans for the future have not been made public, though it is understood that Silver will take over another car in the near future.

Chalmers sales will be handled by a new company which is to be styled Chalmers Sales Co., though it will be a direct factory branch. It will be in charge of C. H. King, who has been head of the Department of Dealers for the Chalmers company since March of this year.

The Silver company, which is one of the largest distributors in the Metropolitan trade, first came into prominence in the spring of 1910, when it acquired distribution of Overland cars. Prior to that C. T. Silver, the head of the company, had handled the Overland and the Marion for a short time in Brooklyn. On January 1, 1914, the company took over the Peerless branch in New York and the distribution of Peerless cars. This business was conducted together with the Overland business. On August 1, 1916, the Silver company took over the distribution of the Chalmers car and shortly thereafter dropped the Peerless. On October 1, 1916, the distribution of the Dort car was taken over.

To Make Sleeve-Valve Engines

PHILADELPHIA, May 7—The American Sleeve Valve Motor Co., with offices in the Widener Building, has secured ownership of the patents covering a rotating sleeve as applied to internal combustion engines. Manufacturing plans are in progress and it is expected that deliveries will be started in the fall. E. Remington, of the arms and typewriter company bearing his name, is chairman of the board of directors of the company; P. E. Remington is president, and has dropped all other interests to devote his time to the new company. Wilfred Hartley, formerly treasurer and factory manager of the Remington Arms Co., is vice-president. Among the officers and directors are: E. R. Hollander, former president of the American Fiat Sales Co.; T. M. Fenner, Wisconsin Motor Mfg. Co.; C. P. Hollister, chief engineer, formerly with the Stanley Electric Co.; H. S. Evans, International Time Recording Co.; Le Roy Ferry, Ferry & Giol, export merchants; H. R. Davis, president First National Bank of Freeport, L. I.; J. E. Fite and Alexander Lawrence, Jr., Philadelphia manufacturers.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

R. J. Murphy, who for the past 14 years has been connected with the B. F. Goodrich Rubber Co., Akron, his last position being Southern manager, with offices at Atlanta, Ga., has resigned to enter the automobile business as wholesale distributor. J. R. Cheshire, who has been Mr. Murphy's assistant for the past 3 years, will become his successor.

W. F. Herst has been appointed general manager of the M. & S. Gear Corp., Detroit. For 7½ years he was active head of the Brown-Lipe Gear Co., Syracuse.

R. L. LaRue has become a special factory representative for the Olympian Motors Co., Pontiac.

George W. Cravens has been made chief engineer of the Elkhart Carriage & Motor Car Co., Elkhart, Ind.

Frederick C. Blanchard, formerly works manager of the Ashcroft Mfg. Co., Detroit, has been elected vice-president in charge of manufacturing for the Detroit Lubricator Co., Detroit.

Clifford V. Herbert, who has been working at the De Palma Mfg. Co., Detroit, perfecting a tractor, is shipping the complete machine to Suffern, N. Y., for demonstration before representatives of European countries.

Harold Tuttle has been appointed assistant general manager of the Howard Automobile Co., Pacific coast Buick distributor. He will make his headquarters at Los Angeles.

C. A. Oldham, recently manager of the U. S. Tire Co. branch at Kansas City, has been transferred to St. Louis, succeeding as manager there H. H. Hubbard, detailed on special work at the U. S. factory.

George Arbuckle, recently of the Winton Sales Co., Kansas City, has joined the staff of the Supreme Motor Co., St. Louis.

John A. Garrity of Detroit has been named sales manager of the B-P. Motor Co., Peoria, Ford dealer, succeeding Josef S. Pfeiffer, who becomes its general manager. Garrity was formerly connected with the Schulte-Mulleavy corporation.

J. D. Carey, formerly southern district manager of the Kelly-Springfield Tire Co., has been made manager of the carriage tire department, with headquarters at the general sales office, Cleveland.

John A. Cleary, formerly in charge of automobile advertising for the Philadelphia Public Ledger, has entered the service of the Automobile Sales Corp., Cadillac distributors, in charge of sales promotion work and advertising.

Gould Allen has become sales manager of the Fuller & Sons Mfg. Co., Kalamazoo.

Dawson Blackmore has become director of sales of The O. Armleder Co., Cincinnati. He has had long experience as a business executive in charge of sales. He was formerly president of the Krell Piano Co., devoting his attention especially to the sales department.

Foster C. Burnett has been appointed Southwestern supervisor for the Ajax Rubber Co., Dallas.

E. J. Currier, formerly with the Maxwell Motor Co., Hartford, has become service manager for the Whaley Motor Co., Hartford, Conn.

H. A. Grubb, formerly manager for the Firestone Tire & Rubber Co., Dallas, has been appointed Western district sales manager. He is succeeded by John Brakley, formerly Texas credit manager at the Dallas branch.

Ralph Kaye, specialist in automobile advertising and publicity, and a member of the staff of the Otto J. Koch Advertising Agency, Milwaukee, has assumed charge of the advertising and publicity department of the Kissel Motor Car Co., Hartford, Wis.

C. H. Schrag, formerly with the Bosch Magneto Co., Springfield, Mass., has become manager of the Bosch department of The Ashwell Service Station, Hartford.

J. H. Roberts, formerly with the Sykes Motor Sales Co., Bridgeport, has been appointed retail sales manager of The Whaley Motor Co., 449 Wethersfield Avenue, Hartford.

J. B. Banta has been appointed supervisor of sales for the Smith Motor Co., Locomobile and Stutz dealer in Detroit. Banta has served with the Locomobile company for 9 years and was formerly the company's representative in Chicago.

Fred L. Brano has been appointed wholesale manager for the L & D Motors, Inc., New York, Marion-Handley and Pullman distributor. He will have charge of the Marion-Handley business. J. B. Schenck will be manager of the wholesale department for the Pullman.

Motor Car Securities Quotations

	May 5, 1917	
	Bid	Asked
*Ajax Rubber Co.....	67	67½
*J. I. Case T. M. Co. pfd.....	84	86
Chalmers Motor Co. com.....	92	94
*Chandler Motor Car Co.....	98	100
Chevrolet Motor Co.....	98	100
Fisher Body Corp. com.....	34	38
Fisher Body Corp. pfd.....	94	96
Fisk Rubber Co. com.....	70	75
Fisk Rubber Co. 1st pfd.....	103	106
Fisk Rubber Co. 2nd pfd.....	92	95
Firestone Tire & Rubber Co. com.....	130	135
Firestone Tire & Rubber Co. pfd.....	106½	108
*General Motors Co. com.....	104½	104½
*General Motors Co. pfd.....	89½	90
*B. F. Goodrich Co. com.....	49	49½
*B. F. Goodrich Co. pfd.....	106	109
Goodyear Tire & Rubber Co. com.....	207	210
Goodyear Tire & Rubber Co. pfd.....	106½	108½
Grant Motor Car Corp.....	5	7
Hupp Motor Car Corp. com.....	3½	4½
Hupp Motor Car Corp. pfd.....	74	80
International Motor Co. com.....	16	18
International Motor Co. 1st pfd.....	70	70
International Motor Co. 2nd pfd.....	30	30
*Kelly-Springfield Tire Co. com.....	47	49
*Kelly-Springfield Tire Co. 1st pf.....	87	94
*Lee Rubber & Tire Corp.....	17½	18½
*Maxwell Motor Co., Inc., com.....	47½	48½
*Maxwell Motor Co., Inc., 1st pfd.....	63½	65
*Maxwell Motor Co., Inc., 2nd pfd.....	30½	31
Miller Rubber Co. com.....	204	208
Miller Rubber Co. pfd.....	104½	106
Packard Motor Car Co. com.....	152	152
Packard Motor Car Co. pfd.....	101½	101½
Paige-Detroit Motor Car Co.....	32½	34½
Peerless Truck & Motor Corp.....	12	15
Portage Rubber Co. com.....	150	155
Regal Motor Car Co. pfd.....	24	24
*Reo Motor Car Co.....	29½	30½
*Saxon Motor Car Corp.....	46½	47
Springfield Body Corp. com.....	70	80
Springfield Body Corp. pfd.....	100	120
Standard Motor Construction Co.....	11½	12½
Standard Parts Co.....	90	90
*Stewart-Warner Speed. Corp.....	73	74
*Studebaker Corp. com.....	86½	86½
*Studebaker Corp. pfd.....	101	107
Swinehart Tire & Rubber Co.....	70	75
United Motors Corp.....	30½	30½
*U. S. Rubber Co. com.....	55½	56
*U. S. Rubber Co. pfd.....	106½	107
*White Motor Co.....	44½	44½
*Willis-Overland Co. com.....	29½	29½
*Willis-Overland Co. pfd.....	95½	96

*At close May 5, 1917. Listed N. Y. Stock Exchange.

†Par value \$10.

P. E. Mills, formerly assistant chief engineer of the Elsemann Magneto Co., Brooklyn, has been made sales engineer of the company.

Bert A. Quayle has been made manager of sales of the Rim & Tire Division for the Standard Parts Co., Cleveland. He succeeds P. W. Gilbert, who has been appointed assistant to the manager.

Ralph S. Lane, chief engineer of the Hyatt Roller Bearing Co., has resigned to devote his time to the operation of the Bearings Service Co. and the United Motors Service, Inc., of which companies he is president.

R. E. Wells has been appointed engineer of the motor car division of the Hyatt Roller Bearing Co. He was formerly assistant engineer of the Hupp Motor Car Co.

W. O. and T. R. Thomas have opened Detroit headquarters as engineering specialists in the automobile industry, and will act as consulting engineers for a number of automobile manufacturers. They formerly had offices in New York and England and were consulting engineers for the Mercedes company in Germany, the Minerva in Belgium, Laurin and Klement of Austria, and Panhard-Levassor of France.

James Studebaker, Jr., has been made a member of the executive committee of the Studebaker Corp., South Bend, succeeding his father, the late J. M. Studebaker.

F. Studebaker Fish has been elected a member of the Studebaker Corp., South Bend, to fill a vacancy left by the death of Nelson J. Riley.

W. B. Jameson has been appointed in charge of the factory of the Briscoe Motor Corp., Jackson. He was formerly in charge of the New Castle, Ind., factory of the Maxwell Motor Car Co.

N. Wilson has been appointed assistant traffic manager of the Harroun Motors Corp., Detroit. He was formerly assistant traffic manager of the Maxwell Motor Co.

W. S. Barnes, formerly connected with the Willys-Overland Co. branch in Portland, Ore., and later with the Paige Motor Sales Co. and Saxon Motor Sales Co. of Oregon, has been appointed west side salesman for the Oregon Motor Car Co., Studebaker dealer.

Charles B. Harris has resigned as sales manager of the H. L. Keats Auto Co., Portland, Oregon, distributor for Chalmers and Peerless, to become field representative of the Paige Detroit Motor Car Co., Portland, for Oregon and Southern Washington.

William J. La Casse, who has served nearly two years as Pacific Northwest zone supervisor for the Maxwell Motor Co., has been appointed Pacific Coast supervisor for the same company, with jurisdiction over Oregon, Washington, Idaho, Utah, Western Montana, California, Nevada, Arizona and Hawaii. His headquarters will be in Portland.

Hardware Merchant Dies

KALAMAZOO, May 7—Albert Knetles Edwards, president and general manager of the Edwards & Chamberlain Hardware Co., died at his home April 27.

Compradores Gets Ever-Tight

DETROIT, May 7—The Compradores, Inc., manufacturers' representative, has moved into larger offices in the Loveland Building, 1199 Woodward Avenue. The company has recently become distributor for the States of Ohio and Michigan for the Ever-Tight Piston Ring Co., St. Louis.

Oregon Dealers Expect Reduction in Gasoline

New Law, Effective May 21, Permits Standard Grade — Government Controlled Grade Was Higher

PORTLAND, ORE., May 5—Although gasoline prices have been on the ascension in the Eastern and Middle Western states there has been no raise in the price either of crude oil or the refined product on the Pacific Coast since last December and Oregon motorists anticipate a decrease in price before an increase comes.

Under the Oregon law, all gasoline sold within the state must have a gravity of 60 and as a result Oregon motorists have been required for years to pay one cent a gallon more for gasoline than the prevailing price in California and Washington, neighboring states. The reason assigned for this discrimination by the officials of the big companies is that gasoline intended for consumption in Oregon must be put through a special process in order to bring it up to the gravity specifications required under the Oregon law.

On a showing backed by government experts that gasoline having a gravity of 60 is no better from the motor car standpoint than the grade of gasoline sold in the other states of the West, the Oregon legislature of 1917 amended the law so as to eliminate the gravity requirement. The new law takes effect May 21, at which time motorists are expecting a reduction of one cent on gasoline which has been quoted at 21½ cents retail since early in December.

Starting-Lighting Committee Named

DETROIT, May 6—Members of the starting and lighting batteries division of the Standards Committee of the Society of Automotive Engineers, of which G. E. Goodard, assistant engineer Dodge Bros., is chairman have been named and include: W. H. Palmer, Exide Battery Co.; W. H. Conant, Gould Storage Battery Co.; R. G. Nightingale, Willard Storage Battery Co.; J. V. Whitbeck, Chandler Motor Car Co.; L. H. Combs, of the Prest-O-Lite Co, and W. L. Bliss of the United States Lighting and Heating Co.

New Four Drive Truck

CLINTONVILLE, WIS., May 6—Another four wheel drive truck company is being formed in Clintonville. This is to be known as the Clintonville Duplex Truck Co., and the moving spirit is Berserdict, formerly of the Four Wheel Drive Co. This is not the same concern as the Duplex company of Lansing, Mich.

Hayes Earns \$408,000

DETROIT, May 7—The Hayes Mfg. Co. earned \$408,000 for the 9 months ending March 31. Earnings of the company in March were \$60,180 on sales totalling \$417,000 for the month. The

company's sheet shows total assets of \$2,295,676.99 on March 31, this year, with surplus of \$238,619.30 and reserve of \$131,912.40 for depreciation. Current assets totaled \$1,336,642.52 comprising \$95,674.61 in cash, \$469,592.60 in accounts receivable and \$771,375.31 in inventories, of which \$280,008.46 was the value of raw materials and \$491,366.85, the value of goods in process of manufacture. Current liabilities were \$425,145.29, including \$166,248.20 in notes payable, \$191,449.82 in accounts payable and \$67,447.27 in accrued pay-roll.

Packard Increases Truck Output

DETROIT, May 7—The Packard Motor Car Co., anticipating more demands, is preparing to increase its truck output from 600 trucks to 1000 trucks per month. The company will resume foreign shipments as soon as the government requests that such aid be given the Allies. The company has made no foreign shipments since Dec. 15. Domestic business has gone forward rapidly and passed the \$3,000,000 mark in March.

Monitor To Double Production

COLUMBUS, OHIO, May 6—The Monitor Motor Car Co. has been obliged to secure additional factory space. The changes and additions will permit the doubling of the production within 60 days.

Chicago Branch for Prescott

WEBSTER, MASS., May 6—The Prescott Auto Parts Co. has established a branch in Chicago at 910 S. Michigan Avenue. Prescott rings hereafter will be stamped with the name of the manufacturer.

Empire Adds Speedster Model

INDIANAPOLIS, May 6—The Empire Automobile Co. is placing on the market a new speedster model, to be known as model 51.

American Six Is \$1375

PLAINFIELD, N. J., May 6—The American Motors Corp. has removed its advertising department to the Springfield factory. After May 1 the price of the American Six will be advanced to \$1375.

Offers Hudsons to Red Cross

DETROIT, May 6—The Bemb-Robinson Co., Hudson dealer, has tendered its fleet of service cars to the Red Cross for daily use during the campaign week and for duty at any time in the future.

Lexington Dealers Organize

LEXINGTON, KY., May 6—The Lexington Automobile Dealers' Association has been organized with the following officers. Thomas B. Dewhurst, president; S. B. Featherstone, vice-president; W. R. McDonald, secretary and C. W. Howard, treasurer. The directors are: William C. Gribben, Cecil Cantrill, W. M. Phillips, R. B. Taylor and Joe Goodwin.

Licenses in Bay State Show Increase of 30%

That Is, the First Quarter Shows This Much—But April Is 140 Per Cent Ahead of March

BOSTON, May 6—That the motor industry has been prosperous in Massachusetts during the past 4 months is shown by the great increase in registrations compared to the same period of a year ago, and also the first quarter of 1915. During April this year 21,452 plates were issued, or 30 per cent more than a year ago. While it is a substantial gain it does not measure up to the 140 per cent gain during the previous month over the March figures. Here are the figures as given out up to April 30, which show that up to date the state has received nearly \$1,300,000 from the motorists alone. On that basis New England motorists must have turned over to their states so far more than \$2,000,000 in fees and about as much more in property taxes.

	1917	1916	1915
*A u t o m o b i l e certificates..	117,250	81,289	68,083
M a n u f a c t u r e r s and dealers	3,152	1,740	1,569
Operator and chauffeur li- censes	18,095	10,066	10,928
Operator and chauffeur re- newals	35,971	24,569	21,750
Receipts	\$1,293,336	\$951,135	\$808,982

*Includes 19,178 commercial vehicles in 1917, as against 12,392 in 1916 and 8478 in 1915 periods.

Dealers Receive 60% Rebate

INDIANAPOLIS, May 8—The members of the Indianapolis Automobile Trade Association at a recent meeting voted a rebate of 60 per cent of the cost of the show space to all dealers in good standing. The association voted also to aid the awakening of the patriotism movement started by the Chamber of Commerce, and contributed \$1,200 in pledges toward the movement. A committee was appointed to solicit further subscriptions.

Flag Raising at Metz Plant

WALTHAM, MASS., May 6—One of the big events in Waltham was the patriotic exercises connected with the flag raising at the Metz factory on Wednesday. All the employees were assembled in front of plant No. 2 and President Charles H. Metz made a patriotic address. Then a huge American flag was unfurled and hoisted to the top of a big flag pole to wave until peace is declared.

Gas Up 1 Cent in Texas

DALLAS, May 7—Gasoline has gone up and drivers are paying the record price of 22 and 23 cents. Two of the leading oil companies last week advanced 1 cent.

Slight War Depression Dying Out in the West

Attempts to Arouse Economy Had Bad Effect—Hold Big "Business as Usual" Meeting

KANSAS CITY, May 8—Wide-spread reports, played up as serious, of price rises in foodstuffs have been the prime cause of a temporary stunning of business generally in the Kansas City district. The depression lasted a day or so in some lines; it still persists in others. The newspaper stories apparently aimed to arouse the public to economy—but they had the effect of causing a cessation of buying to a radical extent.

The effect was felt in the automobile trade of the cities, and to smaller degree in the country. It will last until the people recover from the unjustified scare—which may be next week, or may not be until troops are actually moving, and the money for supplies and transportation is being spent.

The uncertainty as to what the soldiers will do, and what this country will do, is quite as important a factor—perhaps more important than the food scare. Business men, as well as customers, don't know what to expect; and they are ultra-conservative.

The crop situation in Kansas and Oklahoma has now become more definite; it is known that a large acreage of winter wheat, the "cash crop" that puts money into circulation as soon as harvested, has been and must be plowed up. The rains of last week brought out all the wheat that will make any crop at all. Northwestern Kansas wheat is about 10 per cent of normal condition; south central 70 per cent; north central 20 per cent, and the eastern part above normal. The average for the State means less than 50 per cent of last year's crop if there are no adverse developments. Much of the lost wheat ground will be put into other highly profitable crops—which will not get sold and produce circulating money for several months after the normal time for wheat-money circulation.

The crop shortage (which is temporary), the food scare (which even now is being dissipated) and the uncertainty as to the war developments (which should be corrected shortly) therefore combined to retard sales of automobiles, and to cause ultra-conservatism.

The most aggravating evidence of this conservatism has been found among some banks in the country, which have curtailed their lines of credit to automobile dealers.

But Kansas City banks, and most banks of the district, have supreme confidence in the automobile industry—more right now than ever before. And they are backing up the dealers nobly. Instances are heard of country dealers, turned down by their local bankers, who

have come to Kansas City and got longer lines of credit and better rates.

"We feel that the automobile industry is one perhaps above all others that should receive hearty support right now," said an official of one of the largest banks. "Automobiles are better property now, and will undoubtedly be better 6 months from this date. We realize the vast outlet for other commodities to the automobile industry, and the manifold and diverse hardships that will result if the automobile industry is allowed to languish. And we realize that the production and distribution of food depends more than many imagine, on the automobile, the truck and the tractor—to say nothing of the collateral activities of the farm, and of commercial life. You can see that we appreciate the position of the automobile from the two angles—the industry's employment of men and use of materials, and the industry's service to other lines of business and human needs."

The bankers are talking this way to their country correspondents.

This is putting the case baldly, and showing it on its worst side.

On the other side are the statements of branch managers and dealers that there have been no cancellations; that in many districts dealers are taking their cars as ordered, sending checks to assure the holding of them; that there is no let-up in the emergency methods of distribution.

The accessory dealers and jobbers almost invariably report a continuation so far into April of the consistent gains of the past year and a half. Up to Saturday, April 21, these gains had continued. Some intimate that dealers may be buying to avoid the shortage that active war might bring, or to get in ahead of expected rises in price.

Most accessory men deplore the spread of the food price scare and the agitation for "economy." They fear that a continuance of this agitation will keep the spirits of the public, and of the dealers, depressed, and that later in the spring serious falling off may come.

The trade in Kansas City has started a back-fire, even before the actual results of the food price scare became apparent, to offset pessimism. A big dinner was held at the Baltimore Hotel, at which more than 300 motor car salesmen were present. The slogan of the meeting was "Business as Usual." Speakers told of the prosperity of the Kansas City district; the fact that there was now a plethora of money in this country; that industry had been increasing, and should logically continue to increase, war or no war; that the freight shortage of the winter and spring was sufficient indication of the expansion of business. This expansion cannot logically be suspended by the war—it should be much enhanced if troops move, it should continue under peace. The salesmen were impressed and enthused with the idea that the business man who hesitates now will surely miss opportunity, and fall behind the procession. Such hesitancy will also contribute to the demoralization of business.

St. Louis Dealers Say War Has Little Effect

Dealers Attribute Slight Check to Weather Rather Than War— Healthy Gains in Most Cases

ST. LOUIS, May 8—The war has not seriously affected the motor car trade in this community. It has affected the accessory trade to a greater extent because of higher prices for car equipment, especially small articles. The most serious inroad has been on the sales of garage equipment. Joseph A. Schlecht, president of the Mound City Buggy and Automobile Co., and president of the Automobile Manufacturers' and Dealers' Association, says:

"There has been a check on what we expected in the way of trade recently but I ascribe this rather to the weather than to war. We have had no cancellations but our dealers are anxious to get out their machines." F. W. A. Vesper of the Vesper-Buick Auto Co. says: "We have heard of the war as a trade deterrent from only three dealers and all of those were in Mississippi. We have 102 dealers on our list and the others do not appear to be alarmed." I. G. McNeice, manager of The Cadillac Co. of St. Louis, says: "We are in a better selling situation than ever before and see no reason why conditions should change." John F. Shuford of the Phoenix Auto Supply Co. says: "The war situation has been a serious check on the sale of garage, vulcanizing and other equipment. Garage men all through this section are doing some serious thinking before they invest in added machinery they had planned to buy this season."

Abandon 50-Hour Service

HARTFORD, May 8—Having become convinced that the 50-hour free service plan is valueless, the Colonial Automobile Co. has abandoned it and adopted the regular Studebaker service station plan. William M. Turnbull, general manager of the company, says: "The inadequacy of the 50-hour service has been forcibly expressed on numerous occasions. On going over the records we encountered many cases where service coupons had not been used at all. One owner in nearly 3 years had not been near the service station once to avail himself of the free service. In that time his car did not receive proper attention. Under the new service plan an owner is to turn his car over to the service station at stated intervals."

Hinkley Heads Detroit Section

DETROIT, May 8—Carl C. Hinkley, production manager and vice-president of the Chalmers Motor Co., has been selected to head the Society of Automotive Engineers' Detroit section for the coming administration.

Big Need of the West Is More Farm Tractors

**Shortage Is Now Apparent and Few
Kansas City Houses Have Any—
Greater Production Urged**

KANSAS CITY, May 8—The big need of the Middle West, for increasing the food production, is tractors and farm machinery. These are not being produced in sufficient quantities to meet the expected demand.

Few Kansas City houses have any surplus stocks. Several houses that usually have a dozen or more tractors on hand this time of year have none. And it is an off season. Tractors are usually sold a month or so later, to care for harvest, and plowing after harvest into the late fall. Nearly all available tractors are going out now to plow up wheat land and other land that has not been utilized in past years. A considerable amount of sod is being turned under now; the cattle shortage is reducing the available numbers that can be put on pasture.

If the manufacturers could make tractors at once, they could be delivered in time to be useful following harvest for plowing in preparation for fall sowing of wheat for next year's crop. These tractors—and indeed automobiles—could be used to expedite the handling of this year's crops, belt power being important for harvest, for threshing, for filling silos and for taking care of the forage crops that must be planted on much wheat land.

The Kansas City Tractor Club has adopted a resolution, and sent it to Howard Coffin, urging that tractors and farm machinery be put on the preferred list with munitions and cars, so that adequate production may be effected for this summer and fall. The club is receiving 20 names a day of tractor operators, and many requests for such operators.

Night Tractor Plowing

BLOOMINGTON, ILL., May 8—Tractor manufacturers of Illinois are taking advantage of the slogan to help win the war by raising more food, by arranging demonstrations of non-stop endurance tests in plowing to enable farmers to work two shifts, one day and the other night. One test was made this week on the Roth farm near Morton. A Barrett tractor plowed the entire field of 65 acres without stopping, requiring 65 hours. Lights were installed around the field for the night plowing. Due to backward weather in Illinois, spring plowing has been delayed and the ability to plow both night and day will enable the agriculturists to catch up with their work and all grain planted in ample time to germinate. Many thousand acres, previously in grass or which were not utilized for grain or other foods in former years, are being

plowed this year, complying with the plea of the Government for an increase in the output of foodstuffs. It is estimated that 100,000 additional acres will be plowed in Illinois this spring as a result of the propaganda from the Government to raise more grain and other foodstuffs. This activity is helping to sell tractors and all manufacturers are reporting a healthy increase in orders for this class of farm machinery.

Canadian Factory for Prest-O-Lite

TORONTO, CAN., May 8—Toronto is to have a storage battery factory. The new plant of the Prest-O-Lite Co., contracts for which have already been let, will be the most modern and best plant in Canada. The company has had a gas plant at Merritton, Ont., and a similar plant at Winnipeg for the past several years. The new battery plant in Toronto will have a capacity of from 300 to 400 batteries per day and the company is making provision in the building to take care of even larger production as the demand may warrant. H. R. Weckerle, who has been the representative of the Prest-O-Lite Co., Inc., in Canada, for the past several years, will be manager of Canadian sales and will direct the sales staff from the general offices at Toronto, the company having removed the general offices, which have been located at Merritton for the past few years, to Toronto.

G. M. Undivided Profits \$18,750,000

DETROIT, May 4—The General Motors Co. has undivided profits for the 8 months ending March 31 of approximately \$18,750,000, as compared with \$17,624,117.03 for a similar period of the preceding year, a gain of about \$1,125,800. The company sold 112,178 cars and trucks during these 8 months as against 86,558 in 1916, an increase of 25,620. Its gross revenue from sales was \$120,250,000 compared with \$102,617,563.34 in 1916, a gain of \$17,632,450. The company had approximately \$23,475,000 in banks and sight drafts.

Friestedt Changes Its Name

CHICAGO, May 8—Friestedt Mfg. Co. is the new name of the Friestedt Rim Contractor Co. The change in name has been made to coincide with the larger scope of the company, which is now marketing what is termed a Hydronizer in addition to its rim contractor. The hydronizer is a glass container which clamps to the intake manifold and permits small quantities of water, kerosene or alcohol to be drawn into the mixture, to prevent carbon deposit.

Bigsby Becomes Vital

CLEVELAND, May 8—The Vital Mfg. Co. is the new name of the Bigsby Rotary Mfg. Co. The concern produces a spark plug.

Wisconsin Aims Shaft at Motor Car Thieves

**Adopts Measure That Makes It an
Offense to Obliterate Car's
Identifying Marks**

MILWAUKEE, May 8—Wisconsin has just placed in effect a drastic law to prevent the obliteration of identification marks on motor vehicles, which has been a favorite method of motor car thieves to hide their depredations. The law reads as follows:

"Any person who removes, defaces, alters, destroys or changes the manufacturers' serial number upon any automobile, motorcycle or other similar motor vehicle for the purpose of concealing or misrepresenting the identity of such vehicle, and any person who buys, sells, disposes of, conceals, receives, or has in his possession any . . . vehicle with knowledge that the manufacturers' serial number thereof has been removed, defaced, altered or destroyed for the purpose of concealing or misrepresenting the identity of said motor vehicle, shall be deemed guilty of an offense under this law and shall be fined not more than \$200 or imprisoned not more than six months, or both such fine and imprisonment.

"The fact that a person buys, sells, disposes of, conceals, receives, or has in his possession any such motor vehicle from which the manufacturers' serial number has been removed, defaced, altered or destroyed, shall be prima facie evidence that such person had knowledge of such removal, defacement, alteration, or destruction, and that the same was done for the purpose of concealment or misrepresenting the identity of such motor vehicle."

Proportioning Ford Distribution

ST. LOUIS, May 8—Ford agents here last week received notice that for the rest of the year distribution of cars on signed sales orders would be proportionate to the annual contract held by the firm. Until this time, distribution has been made proportionate to the number of contracts on file, regardless of the number contracted for. As a result some of the 200-a-year car agencies have received almost their full proportion, while some of the 500 car agencies are very far behind. The announcement says that this will permit most of the agencies to obtain their monthly proportion for the rest of the year but the factory will be unable to make up shortages for past months.

Indianapolis Doble Distributer

INDIANAPOLIS, May 1—The Indiana Doble Steam Car Co. has been organized to distribute the Doble car in Indiana and a part of Illinois and Michigan. The company has temporary quarters at 130 East New York Street. R. V. Law, of the Hulett-Law Motor Car Co., Indiana distributor of the Hudson, is head of the company.

**Revisions Are
Made in Table
Every Week**

[illegible]

ABBREVIATIONS—“A-C” Allis Chalmers, “L-N” Leese Neville, “Tltsn” Tillotson, “Atzr” Atomizer, “Rech” Reichenbach, “DD” Dry Disk, “DP” Dry Plate, “G” Gearless, “F” Friction, “QDR” Quick Detachable Reversible, “QDC” Quick Detachable Clincher, “R & M” Robbins & Myers. NOTE—37/453½” means that the rear tires are 37x3½, and the front are smaller. 300X, means 300 extra.

Maxfer Moves to Harvey

CHICAGO, May 8—The Maxfer Truck & Tractor Co. has outgrown its present quarters in Chicago and is moving to Harvey, Ill. It will use the former plant of the Packless Valve Co., which is double its present plant, and in addition will have better railroad facilities. C. R. Strong, formerly production manager for the Ford Motor Co. at Chicago, has joined the Maxfer company as production manager.

Motor Car Mechanics For Girls

PHILADELPHIA, May 8—In line with the preparedness movement the Spring Garden Institute, Philadelphia, has inaugurated a course in automobile repairing for the girl students of Bryn Mawr College. The Institute already has a similar course for men, but opened the course for women so as to prepare them for the part they may have to play in the war. The course consists of three lessons a week of two hours each, and lasts six weeks.

No Indianapolis War Orders

INDIANAPOLIS, May 8—Indianapolis industries as yet have not been asked to assist the War Department to place the army on a war basis. No government orders have been placed here and no direct inquiries have been made by government officials. The plant of the Nurdyke & Marmon Co. was surveyed

by government officials almost a year ago with the presumable purpose of ascertaining if aeroplane engines might be made there, but no steps have been taken to that end. A survey of all the automobile plants of the city just completed shows that business is going on much the same as usual, except for the difficulties being experienced in procuring raw materials and cars for shipments.

Baltimore Helps Raise Men

BALTIMORE, May 8—Dealers are doing their part toward helping Uncle Sam in his efforts to raise a large army and navy. During the big drive, which closed last week for the 800 Marylanders for the navy, which was Maryland's allotment, dealers loaned both touring cars and trucks to the committees. Machine guns mounted on trucks always followed several parties of touring cars. Speakers stopped in various parts of the city and made addresses. Many recruits were obtained in this manner.

Theodore E. Straus, president of the United Auto Sales Co., Studebaker distributor, was named by Mayor Preston as chairman of the Automobile Committee, in connection with the Baltimore Fund, which is being raised to look after families of men, who may be sent to the front.

Phoenix Leads in Packard Contest

DETROIT, May 7—At the end of the 54th day of the Packard sales contest,

St. Louis leads in Division A, Atlanta in B, Youngstown in C and Phoenix in D. The work of Phoenix is a feature; it has made 333 per cent of its quota and is now sailing for Honolulu on the contest map. Texarkana has a score of 233 and Fort Wayne, 200.

In the Master Salesman Contest, the leaders to date are: Division A, F. J. Petersen, Cleveland; B, W. B. Colman, Atlanta; C, W. J. Barndollar, Des Moines; D, A. R. Dearborn, Jr., Phoenix. In the Cruise Contest the leaders are: A, F. J. Petersen, Cleveland; B, H. C. Berg, Seattle; C, E. R. Beck, Salt Lake City; D, A. R. Dearborn, Phoenix. The 100 Per Cent Club, men who have made and passed their quota mark, now has 76 members. The highest per cent is that of Dearborn, Phoenix, who has 300.

Patents Safe in War

WASHINGTON, D. C., May 8—The status of patents held in this country by residents of foreign countries now at war with the United States will remain unchanged for the present, according to Thomas Ewing, commissioner of patents. The laws of the United States provide that in emergency the Government can take over and make use of any patents. If the output of any manufactured article controlled by a patent is inadequate, the Government can authorize the manufacture by another concern, the amount of damages to be adjusted later in the courts.

Coming—THE SHOW CALENDAR—Events

Shows

Chicago, Ill.	Used Car Show, Coliseum, Chicago Automobile Trade Assn.	May 5-13
Montreal, Can.	Used Car Show, Coliseum, Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	June 20-27
Spokane, Wash.	Interstate Fair	Sept. 2-9
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C.	Carnival and Open House, Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Uniontown, Pa.	Universal Trophy and Stock Car Races, Uniontown Speedway Assn.	May 10
New York, N. Y.	Metropolitan Race, Sheepshead Bay.	May 19
Cincinnati, O.	250-mile Race	May 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.	Championship	June 9
Detroit	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.	Race	June 23
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.	Championship	July 4
Tacoma, Wash.	Championship	July 4
Visalia, Cal.	Road Race	July 4

Spokane	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.	Hill Climb	July 14
Des Moines, Ia.	Championship	July 14
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.	Intercity Reliability	July 17-19
Intercity Reliability	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 23
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J.	Track Race	Aug. 17
Elgin, Ill.	Road Race	Aug. 18
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb	Sept. 8
Providence, R. I.	Championship	Sept. 15
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 23
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
New York	Speedway Races	Sept. 29
New York, N. Y.	Championship	Sept. 29
Uniontown, Pa.	Speedway Races	Sept. 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.	Race	Oct. 13
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13
New York, N. Y.	Race	Oct. 27


MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 7

New York, May 16, 1917

Ten cents a copy
Two dollars a year

 **Champion**
Toledo
Dependable Spark Plugs

Another case where popular demand necessitates carload shipments of **Champion Spark Plugs**



CAPITAL AND SURPLUS
\$750 000 00

WHOLESALE

DES MOINES

April 25, 1917.

Champion Spark Plug Co.,
Toledo,
Ohio.
Gentlemen:

We are glad to receive your letter of the 19th stating that our April carload of Champion spark plugs has left the factory.

We need them badly. The demand for Champion spark plugs this season is far in excess of any previous season during which we have handled them. Our sales of Champion spark plugs have increased more than 100% each year since 1914, and there is every indication that 1917 will show an even better record than this.

We know of no better evidence of the superiority of the plug than this record of sales. Our only fear is that the supply is not going to be equal to the demand.

Yours very truly,

HERRING MOTOR COMPANY


Manager Accessory Sales.

ORM ELK

*Service Stations in practically
every city in which your
make of car is sold*



Van Sicklen

ELGIN

SPEEDMETERS

As accurate and
scientifically perfect
as an Elgin Watch
Noiseless, non-fluctuat-
ing, durable *and* fully
guaranteed

*Prices and Specifications
Mailed on Request*

*The Van Sicklen Company — Elgin Illinois
Factory — Elgin National Watch Co.*

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DEALERS, JOBBERS AND GARAGEMEN

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The Greater Convenience of the

CORBIN-BROWN SPEEDOMETER

This instrument has a new feature worthy of the consideration of every motorist. This feature, together with the steady, consistent accuracy of the speedometer, its strong, simple, friction-minimizing construction and its durable, dependable service should make it the logical selection of all motorists who are desirous of getting the highest returns on their investment. Investigate this speedometer—it is worth investigating.

The Maximum Speed Hand

is an exclusive feature devised and perfected for the Corbin-Brown. This extra hand is red and, as the name implies, registers the greatest speed at which the car is driven. It can then be reset at zero at the will of the driver. It is clear to see what a great convenience this device is, as it obviates that necessity of watching the speedometer on fast stretches and enables the driver to keep his eyes on the road. It can be purchased with your new Corbin-Brown or equipped at the slightly increased cost of \$2.50.

Ask your dealer about this today

Carry the Corbin-Brown this summer

There is also a Corbin-Brown especially designed for Ford service. Catalog upon request

The Corbin Screw Corporation

THE AMERICAN HARDWARE CORPORATION, Successor

NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
Makers of Corbin Duplex Coaster Brakes for Bicycles

WORLD'S RECORD

106.71 Miles Per Hour

AITKEN driving Peugeot, using OILZUM, Won

Coney Island Cup Race, May 13, 1916, 20 miles, averaging 106.71 m. p. h.

Harkness Gold Trophy Race, October 28, 1916, 100 miles, averaging 105.95 m. p. h.

Astor Cup Race, September 30, 1916, 250 miles, averaging 104.83 m. p. h.



OILZUM, due to its exceptionally high flash-test resists the heat and remains and lubricates longest, thus greatly reducing oil consumption and, consequently, minimizing carbon troubles.

OILZUM is just naturally the only perfect oil for high speed motors.

Keep your customers' motors tuned up to concert pitch by selling them OILZUM, the oil used by the world's greatest race drivers and aviators (men who know good oil).

Send for Booklet "Crystal Clear" and attractive race poster.

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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

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No. 7

STABILIZE

THE worst thing that could happen to the world to-day would be business depression.

War, of itself, will not cause such depression. It can only be brought about by hysteria and unwise economy and hoarding. These are the things that we must all work against.

To combat these conditions requires foresight and forethought; their defeat requires intelligent effort to help along the tide of trade and to boost it into new channels when old ones threaten to run dry.

In every business field the survival of the fittest depends upon ability to "cover lapses," as they say in insurance language—to create new business to make up for what is lost.

This is the business policy the motor car dealer must adopt. It is time for serious thought. It is time, perhaps, to put another iron in the fire.

Overhead costs go on regardless of declining business. Already the effect of the public's timidity has been felt in motor car sales. Business has exhibited an appreciable slowing up. If such a condition were to persist, to grow worse, hundreds of dealers might find themselves in uncomfortable circumstances because of their lack of foresight.

But this is no time to retrench. It is the time to expand, to enlarge. The buildings, the equipment, the facilities of the motor car dealer and the garageman are excellently suited for expansion in fields closely allied to the motor car business.

There is the tractor. To-day there is a tremendous demand for tractors. Thousands of dealers have ideal sales and service equipment for handling such trade. These dealers themselves are well qualified to merchandise and maintain tractors.

To those dealers who are on inland or coast waterways the motorboat field offers possibilities. Here, again, many dealers have facilities particularly suitable for marine motor sales and service.

Possibilities in both these fields have been made more potent through the activities of the Society of Automotive Engineers, which is rapidly standardizing hundreds of items of equipment and construction in the motor car,

farm tractor, marine and airplane industries.

Some dealers undoubtedly might find some business in the airplane field.

Intensified merchandising in the accessory field will bear fruit that will to a certain extent offset loss of trade in car sales.

These are all fields through which the motor car dealer can "cover his lapses." They represent work which will minimize the effect of depression and stimulate trade in new directions.

In short they will be stabilizers. That the dealer industry needs such a stabilizer, or shortly will need one, there can be no reasonable doubt.

It is shortsightedness for any business man to carry all his eggs in one basket.

In Service Work

How the "Gang System" Operates

INDIVIDUAL responsibility in the repairshop, regardless of the number of workmen—

Work done on the job, and not the hour basis—

A systematic development of skilled mechanics—

This is what the Hudson-Phillips Motor Car Co., St. Louis, has done by the installation of the "gang" system in its service station. The company is Hudson distributor through southern Illinois and most of Missouri.

With the growth of the organization came increased difficulty in getting enough competent mechanics for service work. Responsibility was divided, and easily shifted. Losses could not be traced. Profits could not be accurately figured.

John F. Phillips, at that time president of the company, knew that these conditions did not exist in the small shop. He knew that four or five men working together every day would develop a spirit of team work and co-operation. He knew that he could watch a small group, keep track of the time on each job, figure his costs, and know his profits.

Balanced Groups of Men

So he divided his workmen up into balanced gangs of five men each. And this is how he did it.

The chart shows the method of dividing the men. There are nine gangs of never more than five men each.

Each gang is a complete unit, and can handle any job that comes into the shop, from radiator to rear axle.

An ideal gang comprises a boss mechanic, a mechanic, two helpers and an apprentice.

By splitting its service station force into a number of units the efficiency of each has been greatly increased.



John F. Phillips

At the time this article was written, about a month ago, Phillips was president of the Hudson-Phillips company. Recently he retired from the company. He is the father of the idea back of this system

and an apprentice. The boss mechanic directs the work of his gang, but is a workman and not an overseer. He is usually somewhat of a leader, an extra good workman, and receives 5 cents per hour more than a mechanic.

The mechanic, though capable of doing any phase of the work, is usually a man of less experience, and one that cannot do the work as well or as quickly as the boss mechanic. He is a boss mechanic in training.

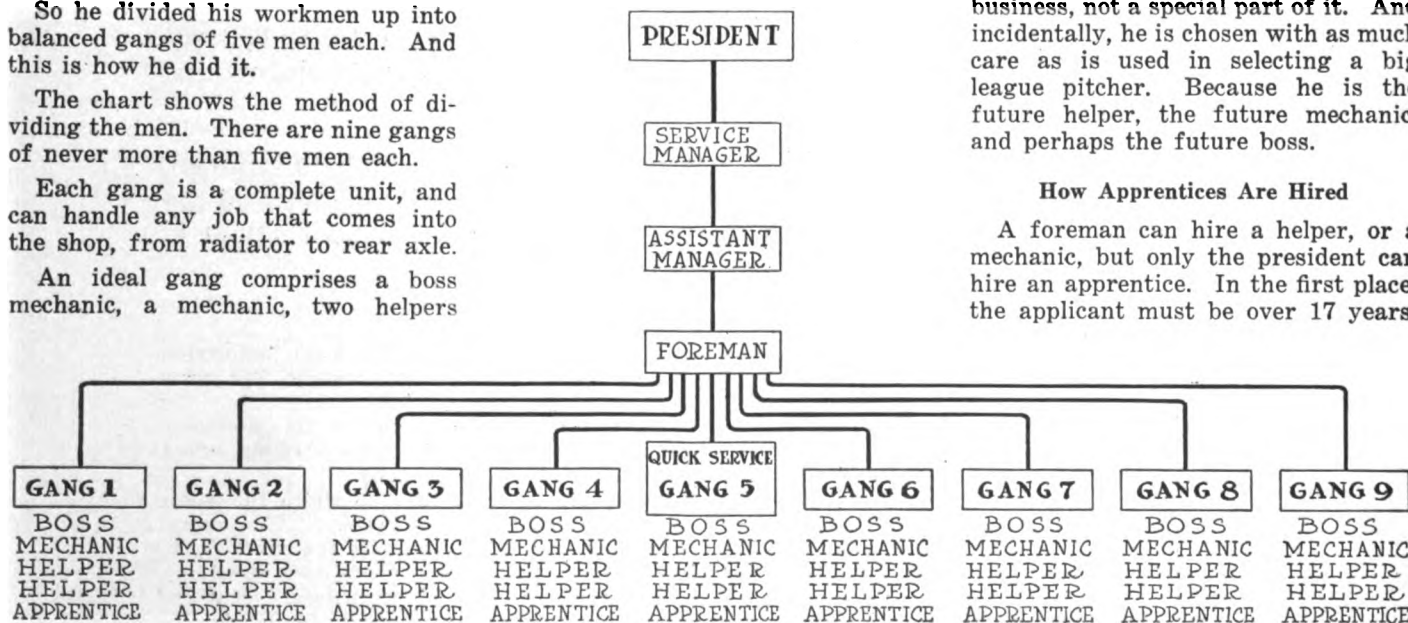
Helpers Are Specialists

The helpers are more than the name implies. In many shops they would be termed mechanics. They are, however, specialists in a sense. For example, their training may have taken them through chassis work, rear axle repairs, the gear box, clutch and minor engine repairs. On these they are experts. Electrical trouble, valve timing, bearing fitting and alignment are not unknown subjects to the helpers. But on these they cannot work independently.

The apprentice is errand boy and time-keeper of the gang. His is the work of getting tools, sweeping the floor, picking up, tearing down, and cleaning parts. But he knows that he has a chance to learn the whole repair business, not a special part of it. And incidentally, he is chosen with as much care as is used in selecting a big league pitcher. Because he is the future helper, the future mechanic, and perhaps the future boss.

How Apprentices Are Hired

A foreman can hire a helper, or a mechanic, but only the president can hire an apprentice. In the first place, the applicant must be over 17 years.



This is how the Gang System of shop management works out on paper. Every gang is composed of the same number of men and each has its foreman. Men from the "quick service" gang can be put in any other gang for emergency work

He must have a grammar school education. He must send his application in by letter. The letter must be intelligently written. The applicant must write a good hand, and he must express a desire to learn the Hudson car from the ground up.

But more important than any of these is the requirement that the applicant must have a father who is himself a mechanic. By this, the boy is in a mechanical atmosphere. He can talk his work over at home. He can come home with dirty hands and dirty clothes, and be proud of his honest dirt. Thought along mechanical lines is bred into him from the start.

The educational requirements seem high. They should be high. The apprentice is the clerk of the gang, keeps the time on each job, and is the basis of the time-cost system used. He has a good foundation at the start.

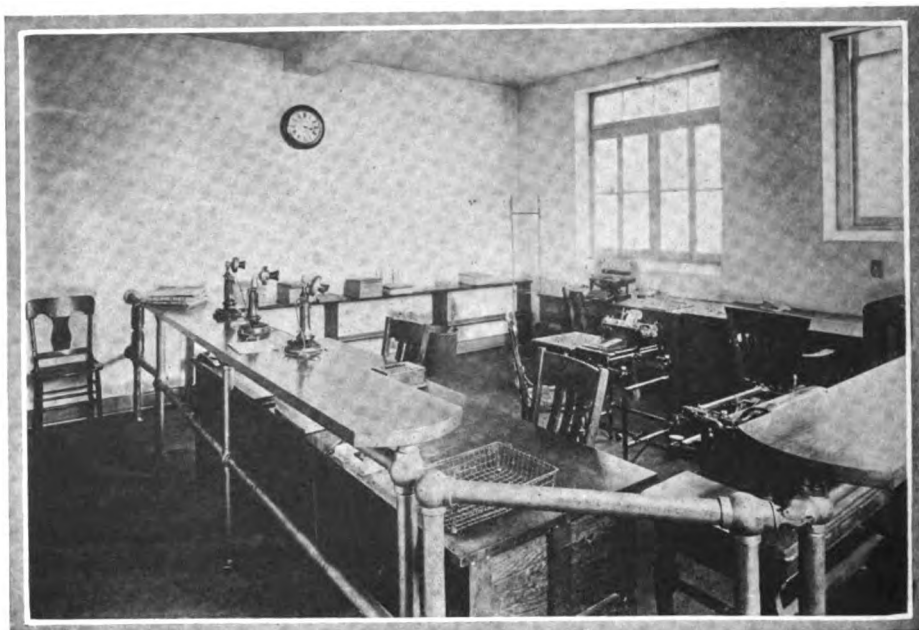
In spite of these requirements, there are 20 boys on the waiting list today. These represent about one-fifth of the applicants, and will be interviewed and hired when new apprentices are needed.

How Gang System Works

Here is how this gang system works out when coupled with an accurate record of the time on each job.

Each gang is trying to beat the record of the other gang, both in quantity and quality of the work turned out. Routine becomes a big game. The public, the company and the men receive the benefit.

The gangs may trade men, and they



This is a corner of the office of the Service Department of the Hudson-Phillips Company

do, in much the manner that ball teams trade players.

Bill, on gang No. 1, may be a crack electrical man, but that gang already has one good electrician. Gang No. 2 has an engine expert to spare, but is weak on electrical work. So Bill, from gang 1, goes to gang 2 in exchange for the engine expert.

This trading is up to the gangs themselves. For example, a certain apprentice was a wizard in tearing down cars and minor repairs. The gang that finally got him had to pay \$25 to his former gang boss to get him. But they got him.

The sporting element alone would not make this system a success. Some direct benefit must come from increased production. On every saving in the work effected the gang gets half and the company gets half. On the other hand, all return jobs are charged to the gang doing the work. Responsibility is absolute and direct.

Bonus for Saving Time

A monthly prize system is also being installed. Each gang starts the month with 1000 points. For meritorious work, a proportional number of points will be given. For mistakes, points will be taken away. At the end of the month \$25 will be given to the leader, \$15 to the second, and \$15 to the third. Phillips believes that work done well should be rewarded.

This, then, is what the gang system has done. It has developed competent workmen and provided a means for training apprentices. It has produced individual responsibility in a large shop. It has cut down the time of each job and produced quick, satisfactory service.

However, this system is not suited for a small repairshop. It requires that each job be timed and the average time of each job determined. This must be done consistently and accurately, and the results compared each week, month and year. For by this alone can the job basis of charging the work done be done intelligently.

The gang system and cost study go hand in hand. For by the latter only can the success of the former be gaged, the costs calculated and the profits determined. This is what the Hudson-Phillips Motor Car Co. has done.

			REPAIR JOB NO. OPERATION NO. WORKMAN NO. GANG NO.
FEB 23 1917			
FEB 23 1917			
HUDSON-PH			

HUDSON-PHILLIPS MOTOR CAR CO.
ST. LOUIS, MO.

Job No. _____

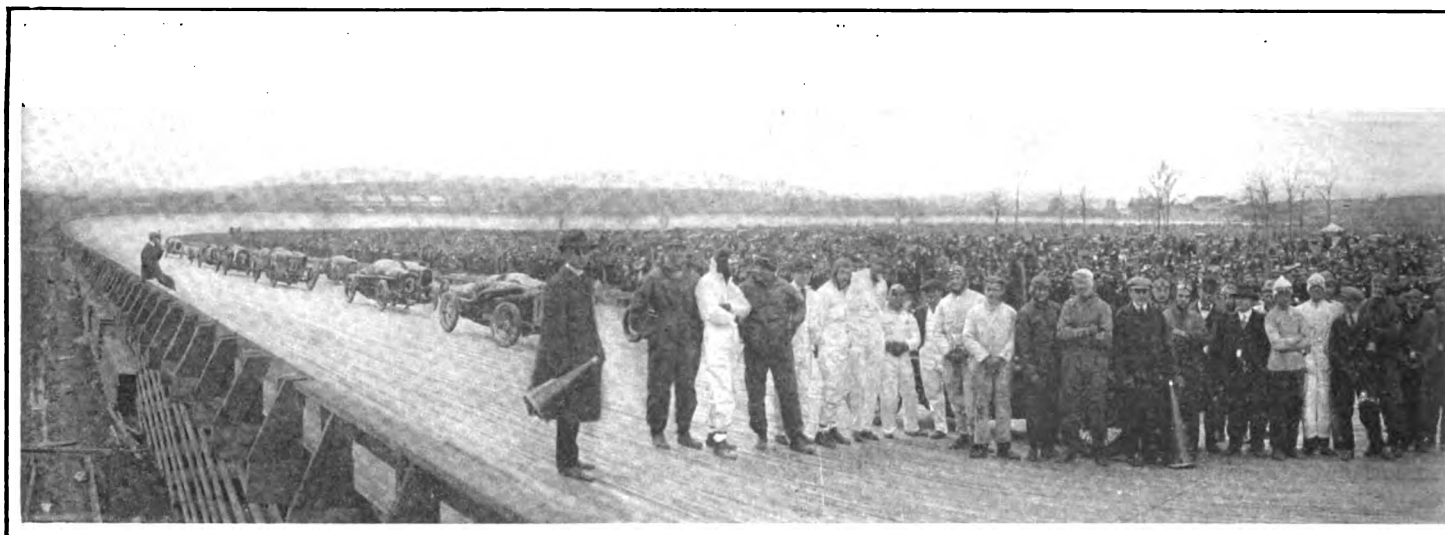
I have received service of driver for _____

Dismissed at _____ M.

Car Fare _____ hours.

TIME DRIVER LEFT GARAGE IS STAMPED ON BACK

Every job must be carefully entered on a card provided for the purpose, and the time the work was started and when it was finished is stamped on the card



The Uniontown Speedway is a board saucer with steeply banked measures $1\frac{1}{2}$ miles. This picture was taken just before the start infield and how the

1917 Opening Race Goes to Unknown

Taylor, From the Coast, But Little Known Here, Takes the Big Prize on Uniontown Speedway—Chevrolet Almost Wins, But Meets a Jinx

UNIONTOWN, PA., May 10—The 1917 racing season opened to-day on Uniontown Speedway with two events: The Universal Trophy, prize \$3,000, and the Dealers' Race, prize \$750. Both were for 112 miles.

The Universal Trophy race was won at 89.25 m.p.h. in a Newman-Stutz by Billy Taylor, who is well known on the Pacific Coast as a road racer, but who is little known in the East. Several drivers of national fame were entered, but they seem to have finished in inverse order to their fame. Barney Oldfield was next to last and drew only \$300.

The Dealers' Race was won by I. P. Fetterman in a Peerless at 82.74 m.p.h. But five finished in this event, leaving one prize unawarded. The car was entered by the Pittsburgh Peerless dealer.

The Uniontown course is a board track, $1\frac{1}{2}$ miles. Since a serious accident a year ago it has been equipped with a guard rail at the top, which hits the hubs of cars and deflects them back onto the track. The value of the rail

was demonstrated at least once during the practice of the drivers.

The weather was good, although alternately cloudy and sunny, which bothered the contestants, and a cold wind was blowing.

A crowd estimated at over 20,000 enthusiastically cheered the favorites in both races. Approximately 1000 automobiles of all types and sizes were parked in and about the track, and the hillsides and coal trestles overlooking the track were crowded with spectators who were not inclined to swell the gate receipts.

A large surplus, however, was available for the speedway treasury after all expenses had been paid, the receipts from the infield alone totaling \$30,000, and an estimated total of \$20,000 from grandstand and box seats indicate gross receipts of \$50,000.

The Universal Trophy Race

Victory seemed certain for Chevrolet's Frontenac until he had to stop to change

a plug in the eighty-first lap, whereupon Taylor shot into the lead, his non-stop record standing him in good stead. Boyer, Chevrolet's team mate, captured second place and Hearne's Duesenberg grabbed third before Chevrolet could make up for the precious time lost at the pit, despite his daring driving during the last few laps, in an attempt to repeat his triumph of last year.

Chevrolet took the lead in the Universal Trophy race from the start, although he was closely followed by Vail, De Palma and Oldfield. De Palma was the first of these to feel the strain, going to the pits in the eleventh lap to change a left rear, thus forfeiting third place to Oldfield, who blew a tire in the twenty-fourth, leaving Vail and Chevrolet still battling for first place.

In the thirty-second lap Vail met tire trouble, and the trouble repeated in the thirty-fifth, practically putting him out of the running. Oldfield made a determined effort to get into the first rank, but was unable to overtake either Chev-

Dealers' Race—112 Miles Non-Stock, for Dealers Located Within 150 Miles of Uniontown

Car	Driver	No. Cyl.	Bore	Str.	Displ.	Carb.	Ignition	Pl'gs	No. Pl'gs	No. Val's	Valve Location	Tires	Wh'l-base	Wh'l's	Pistons	Oil
Packard	Monahan	6	4 $\frac{1}{2}$	5 $\frac{1}{2}$	539.5	Miller	Bosch	A C	12	12	Both sides	Silvertown	121	Houk	Vanadium	Mobiloil
Peerless	Fetterman	8	3 $\frac{1}{2}$	5	331	Ball & Ball	Atwater-Kent	A C	8	16	Inside V	Goodyear	103	R W	Magnalite	Oilsum
Haynes	McCarthy	12	2 $\frac{3}{4}$	5	356.2	Miller	Delco	A C	12	24	Head	Goodyear	105	Houk	Lynite	Mobiloil
Murray	McFarland	8	3 $\frac{1}{2}$	5	331.8	Zenith	Dixie	A C	8	16	Inside V	Silvertown	108	R W	Lynite	Wolf's Head
Buick	Hudoc	4	4 $\frac{1}{2}$	5	300.7	Miller	Bosch	A C	4	8	Head	Silvertown	104	Houk	Lynite	Mobiloil
Murray	Wynn	8	3 $\frac{1}{2}$	5	331.8	Zenith	Dixie	A C	8	16	Inside V	Goodyear	128	Houk	Lynite	Wolf's Head
Haynes	Robinson	6	3 $\frac{1}{2}$	5	288.6	Tillotson	Remy	Ra'ah	6	12	Right side	Goodyear	102	Houk	Lynite	Oilsum
Maxwell	Stuller	4	3 $\frac{1}{2}$	4 $\frac{1}{2}$	175.5	Sprung	Simms	A C	4	8	Right side	U. S.	103	Wood	Magnalite	Mobiloil

All cars equipped with Boyce Moto-Meters. All have Hartford shock absorbers, except Robinson's Haynes, which has Gabriel Snubbers.



turns and every safety measure known to racing. The circuit of the big race and shows the crowd that gathered in the immense cars were parked

rolet or Vail. He lost a precious 90 sec. cooling a universal joint, overheated by the pace to which he was pushing his mount.

While these brushes were going on Taylor was shooting his Newman-Stutz, a 16-valve special, around the course at an even, consistent pace, without stopping at the pits, but keeping fairly close to the leaders all the time.

About the eightieth lap Chevrolet's Frontenac began to miss and on the eighty-first circuit he was obliged to make his costly stop to change plugs. Taylor grasped the opportunity and whirled into the lead, keeping his advantage despite Chevrolet's frantic efforts to overtake him, during which the Frontenac circled the saucer at over 105 m.p.h.

The first car to be forced out of the Universal Trophy race was Fountain's Mercedes, which retired on the thirty-ninth lap with a broken camshaft. Burt's Erbes broke its drive shaft in the fifty-fourth lap, and Vail's Hudson retired in the seventy-first with a burned out coil.

The pit stops were numerous, De Palma stopping four times for tire and

engine trouble. Fountain's Mercedes made two stops before its final retirement, both for tire trouble. Vail's Hudson stopped three times; Chevrolet's Frontenac, Oldfield's Delage, Lewis's Hoskins, and McCord's Crawford all stopped twice. Mulford's Hudson, Boyer's Frontenac and Meyer's Pugh each stopped once.

Vail performed a daring bit of driving near the start of the race when he blew a tire on the southeast curve of the track. His Hudson was near the top rail at the time and started for the inner rail of the saucer, but within a few feet of the barrier Vail managed to swing it around and shot into the pits. When Taylor crossed the tape a winner, Mulford was in his ninetieth lap; Oldfield was on his eighty-ninth; De Palma his seventy-ninth, and Vail his seventy-first.

The Dealers' Race

The Dealers' Race was practically a repetition of last year's event, Fetterman's Peerless once more taking first place, with McCarthy second, although this year McCarthy's mount was a Haynes instead of a Murray. A Murray came in third, however, with Wynn at the wheel, followed by Robinson's

Haynes. Hudoc's Buick was the last to finish, leaving one prize unawarded.

Stuller's Maxwell was the first to drop out, a broken connecting-rod forcing its retirement on the twenty-fourth lap. Monahan's Packard Six succumbed to engine trouble in the seventy-first and McFarland in the Murray was ruled off the course in the ninety-seventh lap for foul driving.

For the first 50 miles Monahan in the Packard Grayhound and McFarland's Murray fought for the lead in a give and take race, which several times brought the spectators to their feet with a burst of cheers. Both cars were forced to undergo severe punishment, as their drivers urged them to maximum speed almost from the start till the Packard began to miss and succumbed to engine trouble in the seventy-first lap.

Soon after this Fetterman in the Peerless got the signal from his pit to sprint and opened his throttle till he was far on the lead with only McCarthy's Haynes to dispute his title to victory, the McFarland in the Murray having been ruled off the course by referee Chester Ricker in the ninety-seventh lap.

The Peerless had been lying back all through the race, being content to keep

Universal Trophy Race on Uniontown Speedway, May 10—For Non-Stock Cars Under 300 Cu. In. Displacement

Car	Driver	Bore	Str.	Disp.	Carb.	Ignition	Plugs	No. Plugs	No. Valves	Valve Location	Tires	Wheel-base	Wheels	Pistons	Oil
Frontenac	Chevrolet	3 3/8	6 3/8	299.9	Zenith	Bosch	K L G	8	16	Head	Goodyear	104	R W	Miller	Oilzum
Hudson*	Vail	3 1/2	5	288	Hudson	Delco	A C	6	12	Right side	Goodyear	105 1/2	R W	Magnalite	Oilzum
Hudson*	Mulford	3 1/2	5	288	Hudson	Delco	A C	6	12	Right side	Goodyear	105 1/2	R W	Magnalite	Oilzum
Hoskins	Lewis	3 3/4	6 3/4	298.2	Miller	Bosch	Ra'ah	8	16	Hor. in head	Goodyear	105	R W	Magnalite	Oilzum
Mercedes	Fountain	3 7-10	6 1/2	279.6	Mercedes	Bosch	Special	8	16	Head	Goodyear	112	R W	Magnalite	Monogram
Frontenac	Boyer	3 3/8	6 3/8	299.9	Miller	Bosch	Ra'ah	8	16	Head	Goodyear	104	R W	Miller	Oilzum
Packard**	DePalma	2 3/4	4 1/2	299.2	Zenith	Delco	K L G	12	24	Head	Goodyear	112	R W	Magnalite	Monogram
Olsen	McBride	3 3/4	6 3/4	298.2	Miller	Bosch	Splitdorf	8	16	Head	Silvertown	107	R W	Magnalite	Mobiloil
Erbes	Burt	3 3/8	7 1/8	294.2	Miller	Bosch	K L G	4	16	Head	Silvertown	98	R W	Miller	Oilzum
Newman-Stutz	Taylor	3 1/2	6 1/2	296.8	Miller	Bosch	A C	4	16	Head	Goodyear	102	R W	Magnalite	Oilzum
Duesenberg	Hearne	3 3/4	6 3/4	298.2	Miller	Bosch	Ra'ah	8	8	Hor. in head	Goodyear	106 3/4	R W	Magnalite	Oilzum
Pugh	Meyer	3 1/2	6	298	Master	Bosch	Ra'ah	8	16	Hor. in head	Silvertown	108	Houk	Magnalite	Mobiloil
Oldfield-Delage	Oldfield	3 3/8	7	289	Miller	Bosch	A C	8	16	Head	Firestone	104	R W	Miller	Oilzum
Johnson	Klein	3 3/4	6 3/4	298.2	Miller	Bosch	Ra'ah	8	16	Hor. in head	Silvertown	100	R W	Magnalite	Mobiloil
Crawford	McCord	3 3/4	6 3/4	298.2	Master	Bosch	Ra'ah	8	16	Head	Goodyear	106	R W	Magnalite	Mobiloil

*Six-cylinder; **Twelve-cylinder aviation type engines; all other cars have four-cylinder engines. All cars equipped with Boyce Moto-Meter; all equipped with Hartford shock absorbers except Fountain's Mercedes, which has Mercedes type.



This picture of Chevrolet leading the bunch also shows the construction of the track and the inner guard rail, which is a worth-while safety measure

ing the first twenty laps the cars averaged 81 m.p.h.

Shortly after this the battle between the Packard and the Murray began, and for the first fifty laps McFarland had made a record of 41:15.6, with Monahan's Packard only 4/10 sec. behind him. At the sixtieth lap McFarland's lead was 7.2 sec., and it was at this point in the race that the Packard began to miss. Fetterman's Peerless took the lead soon after and kept it to the end of the race.

As only eight cars started in this race, there was comparatively little pit trouble, Stuller's Maxwell being the first to stop, for a right rear, in the eleventh lap and again in the twenty-fourth when it went out with a broken connecting-rod. The Packard made three stops before giving up the struggle, due to engine trouble.

in the same lap with the leaders without running any chance of a strain, which might mean elimination. As soon as the Packard and the Murray were eliminated in the struggle for leadership, Fetterman shot into the van and maintained his advantage.

In the tenth lap Wynn's Murray was leading, with his team mate McFarland close behind. Fetterman came third and Hudoc's Buick fourth, with Monahan fifth, Robinson's Haynes sixth and Stuller's Maxwell seventh. Dur-



Billy Taylor, who drove the Stutz for a non-stop win in the big event

Getting the Jump on Summer Business

GEORGE W. FRANKLIN is the Dort distributor in Detroit. And he manages to distribute them everywhere and in quantities. He is a firm believer in the power of competition and constantly devises plans for pitting his salesmen against each other.

Just now, his plan is a sales speedway contest and he has a large speedway painted and hung on a wall of the salesroom where each man can see his record and watch it grow.

The race track has four rows of dots encircling it. Each dot means \$100 and as a salesman sells \$100 worth of merchandise his pin is moved up one dot nearer the goal. If he sells \$1,000 worth, his pin moves 10 dots nearer the goal. There are 50 dots between the starting line and the goal, which means that every lap records \$5,000 worth of sales. For each lap covered, the salesman receives a small flag that is hung in a rack next to the track.

Some of the men now have 2 flags hanging beneath their names showing 2 laps completed, while their pins are somewhere along the speedway displaying that they are started on the third lap around.

The contest started February 1, and ends August 1. The two men who have the greatest number of flags to their credit will receive prizes. The first prize is a trip up the Hudson with a 2 weeks' visit to New York or a trip on the Great

Lakes with a 2 weeks' vacation at a summer resort. The second prize is a 2 weeks' vacation at a summer resort. Both prizes include all expenses paid for the winners and their wives. The company may later pay a third and fourth prize if it finds the first two men lead the others by a large margin. This will prevent the lower members of the race from losing interest.

In addition to the race, there is a monthly contest by which the two highest salesmen for each 30 days receive a \$50 cash prize divided according to the sales. For example if one man sells \$5,000 and

the second \$3,000 the winner receives $\frac{5}{9}$ and the loser $\frac{4}{9}$ of the \$50.

One of the greatest advantages of these contests is that it shows who the best salesmen are. When the company first started its monthly contest it found one man winning the first prize each month. This meant that among its organization it had but one good salesman and a lot of inferior ones, and resulted in a reorganization of the sales force until now each monthly contest shows the entire group close up to the winner, and a different winner almost every month.



Franklin hitches the sales races to the speedway in this way



Nine Prospects a Day

By Ray W. Sherman

"PROSPECTS? Prospects?" replied Reilly to George, one of the new salesmen. "We get them everywhere! Everywhere! Out of the air! Out of the city directory! Out of the newspapers. Out of the wind! Out of—out of—" Reilly ran down and quit.

"Where else do we get them, Tommy?" Reilly turned to Tommy Trumbull, his newly elevated sales manager.

"Oh, everywhere! Anywhere!" said Tommy.

"Very definite!" said George, as he began reaching out into the air and looking into his hands to see if he had caught anything.

Both Reilly and Tommy smiled. Their new man, youthful and willing to learn, was full of spizz, even if he didn't know all there was about selling.

"I want to get some prospects!" declared George. "This anywhere—everywhere stuff may be all right, but I'm not wise to the system. How can I—"

"I'll tell you," replied Reilly, "how you can become a wonderful salesman, provided you have some foundation within yourself on which to build. Here's how: Do you see that man walking down the service driveway?"

"Yes."

"Do you know him?"

"No."

"Well, that's E. P. Pierce. He owns a Sennett, has owned one for several years, and is pretty well satisfied with his car and our service. His car is out in the shop now being fixed. He's going in now to see how it's getting on."

"You go out to the service department and manage to get into conversation with Pierce. You'll find him a congenial man and he'll talk to you. Tell him who you are after you have talked a few minutes and steer the conversation around to car sales and prospects and ask him if he knows any one who is considering buying a car."

"Maybe he'll give you a name and maybe he won't. If he does you have a prospect. In any event you note down in your little book that to-day you met E. P. Pierce and set down some information about him."

"Then, go over to the cigar store and buy me a cigar. Here's the money. While you are there see if by accident you can't get into conversation with some other customer. Eventually tell him who you are and see if he isn't a prospect or can't tell you of one."

"When you go home on the street car you have many opportunities for striking up conversations. With the war on everybody is full of conversation and is glad to talk. Everybody is full of opinions and anxious to get them off his chest. Whenever you talk to a new acquaintance you have developed a new contact point between yourself and the public—and it's the public that buys cars."

"You see, if you keep this up you will make some good friends, some nice acquaintances, and out of the whole mess you'll get a few prospects. If you sell a car as the result of one day's conversations you will make a record for yourself and a lot of money."

"Here's another part of the plan: Make it a sort of rule to talk to nine new people every day. Don't say 'eight or nine.' Make it nine. And set down the names of those with whom you talk, and some information as to who they are and where you met them. Perhaps you might take a small drawer and open an alphabetical card file with this data. Then, if you were sent to make a call on a stranger you could skin through this file and see if you knew him. It would help a lot if you could approach a man and say: 'How do you do, Mr. Jones. I'm Mr. Beckwith, of the Sen-

nett car. You may remember that we talked over the universal training plan one evening a couple of years ago on the back platform of an East Avenue car.'

"This man must at least admire your memory and wonder how you do it. And, incidentally, he will think: 'Gee, I'm quite a fellow. Here's a lad that talked with me for a few minutes on a street car two years ago and he knows all about me.'

"Out of nine new acquaintances you ought to get a lead once in a while."

"I know a hardware man in Pittsburgh who is in business with his three brothers. They started with nothing and have made a lot of money. They have a rule that each one of them must talk to five new people a day and make himself and his business known through a business card or otherwise."

"Do you realize what that means? It means twenty new contact points a day, one hundred and twenty a week, more than six thousand a year. The population of Pittsburgh is a half million, which means one hundred thousand hardware buyers. If these fellows keep this up for 10 years they will have talked to more than half of them. Don't you see what a big asset that will be? Not all of those with whom these men talk will buy hardware of them, but SOME of them will. And the effort of talking has cost nothing. It's merely using waste time. It's like using the waste roadside to grow corn."

"Sounds like a dream, doesn't it?" said George.

Reilly and Tommy laughed. "Somewhat," said Reilly, "and if you think you're going to sell a million cars in a year by this method it is a dream, purely a dream, but if you look at it in a common sense way it's a good method for promoting business."

Fix 'Em or Junk 'Em and The Used Car Show Is Worth While

THESE are the two big ideas that stand forth in the Great Central Market Used Car Show that was held by Chicago last week. It began May 5, and ended May 13. The dealers sold a lot of cars. They got good prices for them. The public showed a great interest. The Chicago dealers are enthusiastic over the result. Several points concerning the show follow:

1—Rebuilt Cars only were exhibited at the show. None of the rattly “as ises” that have given the used-car trade a bad name were permitted to enter the building. This made a fine show. On the whole, it looked nearly as well as a new-car show. It gave buyers confidence.

2—Careful Inspection was made of each car before it was given admission credentials. The inspection points are shown elsewhere in this story. The inspection committee was made up of very capable men and the chairman was Eugene Silver, one of the best used-car men in Chicago. This committee checked cars point by point, and if a car did not measure up it was rejected. About 50 cars were turned down. If a car was defective in only a few minor points it was passed conditionally with the conditions noted on the tag, and these conditions had to be remedied before the car would be admitted to the floor. The Coliseum Annex was used as a sort of vestibule for the show cars, and these condition inspections were made there.

3—Public Interest was aroused and was kept aroused throughout the show. The exhibition was a new thing in Chicago, and there were numerous angles of appeal.

Elevating the Used Car

4—Higher Tone for the whole used-car trade should result from the manner in which this show was handled. The sentiment of the dealers is that the used-car business must be pulled up out of the junk class and the public be made to realize that good values in used cars may be secured from the new-car dealers on Michigan Avenue. So often in the past buyers have been stung with used cars that this part of the trade has a bad name—which MUST be removed. Unless it is, the used-car end of the dealer's business does NOT possess the same tone that may be found at the front end of the building. This lack of tone costs money. As evidence: The values on the cars at the show were considerably higher than the dealers would normally expect—and still the cars sold. The show, with the promotion that accompanied it, served to inject the needed tone into the local situation, and doubtless will have a similar

Result of the Show

Day	Date	Sales	Value
Saturday	May 5	15	\$12,560
Sunday	May 6	35	34,335
Monday	May 7	25	22,775
Tuesday	May 8	21	15,945
Wednesday	May 9	26	24,080
Thursday	May 10	28	21,115
Friday	May 11	19	16,150
Saturday	May 12	17	13,170
Sunday	May 13	36	21,215
Total 9 days		220	\$181,345
Average		24	\$824
Paid admissions			7,353
Free admissions			75,000
Total			\$2,353
One visitor out of each 374 bought a car.			
One visitor out of each 11 paid 25c admission.			

effect over a considerable area about Chicago.

5—Management of the show is an important item. Never having had the opportunity of holding a show before—for Chicago's show is put on by the N. A. C. C.—the Chicago Automobile Trade Association engaged a professional show manager, Thomas P. Convey. He manages a Home Show annually and his show experience helped out wonderfully. Dealers who contemplate staging a used-car show should give the matter great study and should benefit by the experience of dealers in towns where such shows have been held. Thus far the two principal shows are Milwaukee and Chicago. Montreal has one scheduled for next month. The used car show differs from the new car show in various particulars.

6—Advertising was carried in several papers. The appropriation was \$1,400, and more money could have been used to advantage. Street cars advertised also, and Harry Newman, one of the dealers, gave the use of his big moving electric sign on Michigan Avenue. The newspapers co-operated with used-car show news.

7—Tickets were distributed to a list of 250,000, and before the show ended about 300,000 in all were sent out. They were distributed by corporations, were sent to prospect lists, and during the show a batch was sent to the police and other officials. Admission was 25 cents, and, despite the enormous distribution of

free tickets, several thousand paid 25 cents to get in. This paid admission is indicative of the public's interest in the venture.

8—Salesroom Co-operation was an important factor. Many prospects were picked up at the show and taken to the salesroom of the dealer when interest was shown in a type of car not at the show. One buyer even changed his mind and bought a new car after he saw the salesroom display of new vehicles. Several sales were made on the street before the cars were rolled into the building.

9—Sunday Opening proved good business. The first day 15 cars were sold, and Sunday, the second day, 35 were sold. The sales value of Sunday is indicated from sale figures in the accompanying table.

The Sunday buyers included many who can afford a car but who are busy week days and regard Sunday as their “day off.”

Display Their Own Cars

10—Only Their Own Cars were displayed by the dealers in new cars above \$2,000. This was by a special agreement. Other dealers showed anything they had to sell. The rule above \$2,000 was made because it was thought it would detract from the tone of the new cars were other makes to be exhibited.

11—Space cost 40 cents a square foot, and each space was 504 feet, making the cost of each space \$201.60.

12—More Time for the preliminary work would have been better. The real show work did not begin until too near the date of the show. Sixty days would have allowed a more thorough cleaning up of a few details of management, which, however, was well handled as it was.

13—Plenty of Room is more essential in a used-car show than in a new-car exhibition. When the public views new cars it knows what it is looking at, but when used cars are bunched in close formation the display savors of “garaginess” and the cars lose value. Most of the Chicago exhibits had plenty of room. There was one otherwise pretty car that had a muddy, crinkled tire strap on behind, which certainly made the car look forty dollars cheaper. There were about

120 cars on the show floor. When sales were made cars were moved in and out between 8 and 10 a.m. and 5.30 and 7 p.m.

14—The Two Big Conclusions: a. Fix the cars up or junk them. The dealer who sells a car just as he took it in generally has made an enemy, unless the car is in pretty good condition. It is all right to tell a car buyer the exact condition of a car, but this will not prevent the average buyer from damning the dealer for everything that goes wrong. This makes one enemy and the one makes more. It is not good for the reputation of the dealer to let junky stuff go out of his establishment. In taking a car in trade allowance should be made for a "fixing up" cost. The car may not need overhauling, but it should be put in good usable condition and the dealer should expect to give a slight element of service if the owner asks it. This, however, does not necessarily mean service of the new-car type. If a car is not such that some fixing up will make it usable it should be taken in **ONLY AT THE PRICE** the used-car dealer or junkman will give for it.

b. The used-car show is worth while from many points of view. It gives a higher tone to the industry and inspires confidence in the dealer. Also, it probably brings him many future customers. From a money profit basis there does not seem to be much value in the used-car show. It is mostly a big cleaning-out of used cars that otherwise might boost costs by staying in stock and depreciating in value, besides keeping money tied up. The show, also, is a stimulant to the trade generally.

Mechanical Inspection and Appraisal Committee
MR. EUGENE SILVER, Chairman

PLEASE INSPECT THE FOLLOWING CAR:
(Dealer fill out the following)

Make _____ Style _____ Model _____

Motor No. _____ Color of Body _____

Color of Wheels _____ Horse Power _____

Number of Cylinders _____ Original Price \$ _____

Year Manufactured _____ Lowest Cash Price \$ _____

WHAT IS THE CONDITION OF

Upholstery _____ Paint on Body _____ On Wheels _____

R.F. Tire _____ R.R. Tire _____ L.F. Tire _____ L.R. Tire _____

Top _____ Side Curtains _____ Motor _____ Clean? _____ Painted? _____

Transmission _____ Steering Gear _____

Windshield _____ Universal Joint _____ Front Axle _____

Rear Axle _____ Springs _____ Brakes _____ Radiator _____

Magneto _____ Starter _____ Battery _____ Wiring _____

Are Side Curtains Complete? _____

DEALERS NAME _____

Address _____

Phone _____

Manager of the Used Car Department _____

MECHANICAL INSPECTION AND APPRAISAL COMMITTEE

Approved _____

Approved _____

Approved _____

Auspices
Chicago Automobile Trade Association

No. _____

Price \$ _____

Make _____ Style _____

Number of Cylinders _____

Motor Number _____

Owner's Name _____

Inspected May _____ 1917

We, the undersigned, certify that we have examined the above car as to the following:—

Road Test _____

Mechanical Condition _____

Price \$ _____

The Mechanical Inspection and Appraisal Committee

Chairman _____

REMOVAL OF SALE MEMORANDUM

Sold to _____

Removed by _____

Dealer's Name _____

Time _____ Date _____

Clerk _____ Record _____

TO BE SURRENDERED TO INVENTORY CLERK
ON REMOVAL

The form at the left shows the different points that were checked over by the inspection committee in ascertaining whether a car was in proper condition to be admitted to the show. The form at the right was placed on the car after it had passed inspection. The stub at the bottom of this form was turned over to the show management when the car was sold and removed from the building

Advice to Used Car Show Managements

THE advice that follows is from the experience of the Milwaukee dealers who recently held a used car show and sale. The sale was successful. The dealers, however, know more now about this new trade affair than they did before and pass the information on for the benefit of dealers who contemplate holding similar events. A used car show was held all last week in Chicago and one will be held in Montreal June 20-27. The Milwaukee show was managed by the secretary of the association, Bart J. Ruddle, and the advertising and publicity were handled by an agency.

1—Don't split the show in the middle. The Milwaukee show was scheduled and widely advertised to run four days, but on the fourth day it was extended three days. This extension news did not reach the country buyers until the show was over. This was important because many of the sales were to country people. State definitely the dates of the show and hold to them.

2—The used car buyer would rather buy "under one roof" than shop along the Row. Buyers, especially those from out of town, found they could do more in one day at the show than they could do in a week shopping along the Row. Out-of-town buyers said they saved their

expenses by being able to shop "under one roof."

3—The overhauled car is a preferred buy. "As is" cars did not sell so well unless they presented exceptional bargains.

4—Definite plans for co-operation between the show and the salesroom are profitable. About 20 cars were sold at salesrooms to prospects picked up at the show. One hundred and five cars were sold by 22 dealers in seven days.

5—The sale was well handled by committee arrangement. An inspection committee inspected all cars before they were admitted to the show. A sale com-

mittee ran the show. An adjustment committee adjusted complaints made by buyers.

6—Cars were sold with a seven-day guarantee. If the purchaser was dissatisfied he could return the car and apply the price of it on a new car. Only one complaint has arisen thus far, and that is trivial and easily adjusted.

More Room for Parsons

DETROIT, May 14—The Parsons Mfg. Co., which manufacturers bodies, has leased a new plant at Stanley and Vermont Avenues, getting three times as much room as heretofore.

Making a Backyard for the Big City Car Owner

Clusters of Private Garages Are Springing Up in New York City, Where the Car Owner Has a Backyard Garage and All Its Privileges

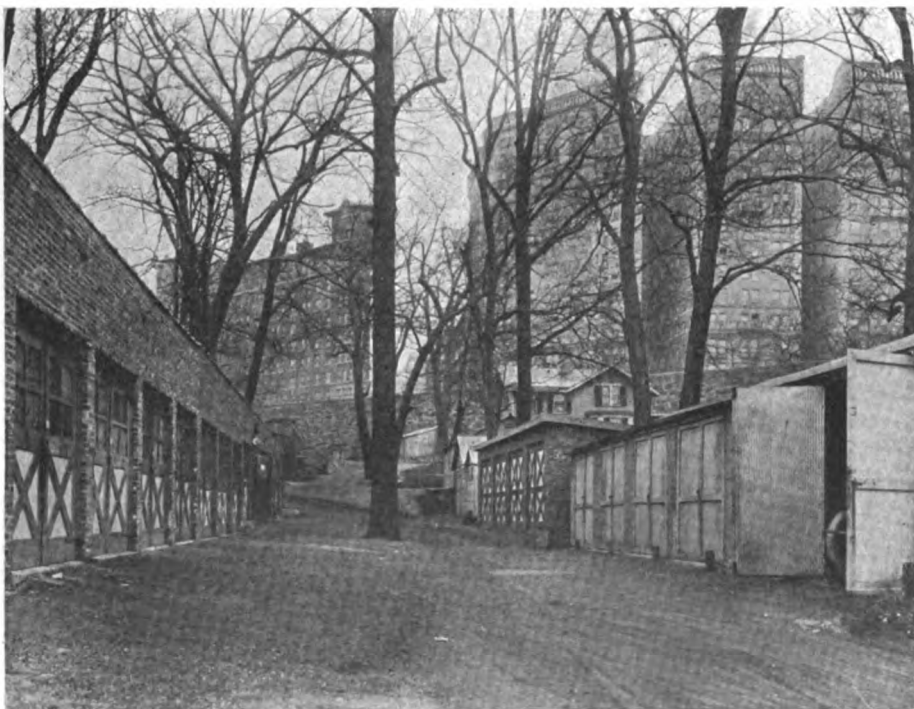


CHARLES ADAMS

Among the first to establish the private garage cluster. He has copyrighted the name Garage Village. Pictures of his Village appear on this page



Looking down from Riverside Drive into Adams's Garage Village. The light in the background is the Hudson River and the Village runs down nearly to the water's edge. Adams lives in the next to the last house at the far right and from his back porch can overlook his whole property. The garages in the immediate foreground are in the same cluster but are not owned by Adams



The picture above was taken from Riverside Drive, which is, in this picture, in the background. The big three-section apartment house in the upper right is the Riviera, where the rents are quite-a-lot-and-up. The house at the left is equally aristocratic, and between them is West 157th Street

BRINGING the backyard garage to the big city apartment house dweller is one of New York's latest industries. Individual garages, of metal or brick or concrete, are erected on owned or leased vacant property and are rented to car owners.

Otherwise the car owner has to patronize a regular garage where the rates range from \$20 to \$45 a month, and where washing and other garage service are included with the rental and must be used.

But in these little garage clusters the car owner does his own washing and polishing and gets no service at all, except the use of light, water, etc. But for this garaging he has to pay somewhat less than in the regular garage. Rates range from \$12 to about \$18.

In the Adams Garage Village at Riverside Drive and West 158th Street the rates are from \$10 to \$20. These garages have concrete floors, many are of brick and all are steam-heated.

While the garages are ideal for the motorist who wants a garage of his own it is still possible for the car owner to get regular garage service.

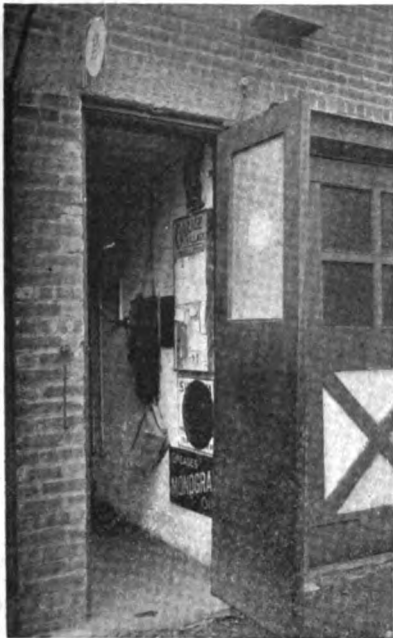
Adams maintains help and can give repairshop service. He also sells accessories and supplies and gasoline, and can



Inside the garages in Adams's Garage Village each car owner has a work-bench, lights, hose, wash rack and all the things necessary for that tinkering so dear to the motor fan's heart

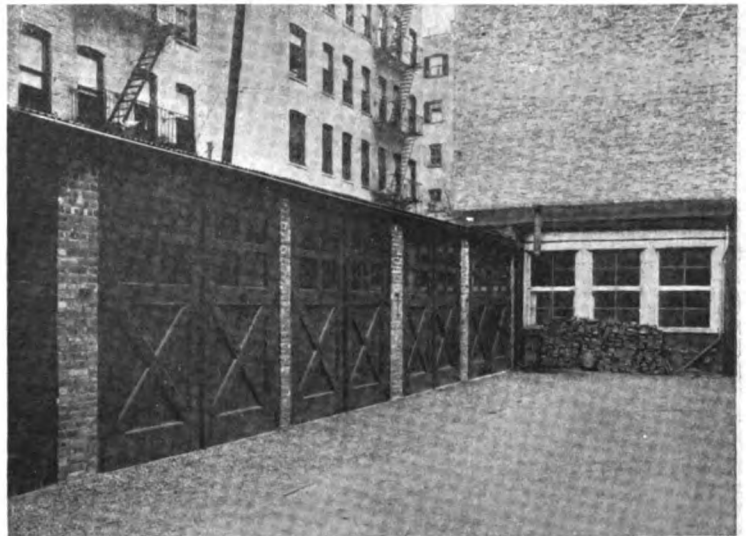


This is the A B Community Garage in a vacant lot at St. Nicholas Avenue and 155th Street, a few feet from the Polo Grounds, where the Giants and Yankees play baseball



In Adams's Garage Village is this little office which runs itself. There is a pay station telephone, bulletin board and toilet

There are six of these in a backyard surrounded by apartment houses at 531 West 159th Street. They are owned by Joseph H. and Edmund R. Banks, who go to business elsewhere every day, just like other folks. The garage business practically runs itself. The little shop in the distance is not included with the garage rent



relieve the motorist any time he gets tired of tinkering.

The Banks garages, shown with this story, rent for \$15 a month. The Ashley & Booth Garages, at St. Nicholas and 155th and at Amsterdam and 187th, rent for \$12. But the latter have no concrete floors and are not such stable structures as are brick garages. Yet they answer the purpose well. They give a car owner a backyard garage at a low rate. In the Adams Garage Village are 102 of these little garages. In the Banks cluster are 6. At 155th and Amsterdam are 46 and at Amsterdam and 187th will be 62, although the building permit provides for a maximum of 75.

Throughout upper Manhattan Island, which is laden with big apartment houses for miles and miles, are here and there large and small clusters—mostly small. A man with a filling station often erects three or four on his vacant real estate—which is very costly in this part of the world.



This cluster is being put up by Ashley & Booth, who also run the cluster at 155th and St. Nicholas, shown above. This property is at Amsterdam Avenue and West 187th Street, on the bluff above the Harlem River. These garages have dirt floors. A community wash rack is maintained near the entrance, at the far left

Accounting *and* Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Snead

Accounting Underestimated Job

System Editor: Since installing your system a few difficulties have arisen which we would like to have you straighten out for us. We made a bid of \$900 on a truck rebuilding job, and when we came to make up the bill, found that we had under-estimated the job.

Labor	\$496.10
Parts	639.53
Oil and grease	8.24

Total charge	\$1,143.87
Our bid	900.00

Loss	\$243.87
------------	----------

How should this transaction be handled on the books? Should the three departments be credited with the total sale of \$1,143.87 and the difference or loss of \$243.87 pro-rated as an expense against each department?

Permanent improvements are made to used cars in stock. What account should we charge? Should this be charged to used car stock or to some expense account?

How about materials such as bar iron, solder, etc.? Should this be charged to Parts and Accessories account or to Repairshop expense?—The White Auto Company, St. Paul.

Answer—When the job of the rebuilding of the truck was finished and all of the cost against this job was shown on your repairshop ticket and this was returned to the bookkeeper for billing, you found the job cost you \$1,143.87. You can only bill this out at \$900 and you would make an entry on Form 1 as follows:

You would charge your customer under Charge account \$900 and credit this amount under the Income, Repair Department.

Now against this Income of \$900 in your Repair Department, you have paid for your labor, which amounted to \$496.10. When the repair department took from the Parts and Accessories department the various parts for the job, it was charged on a regular sales ticket for these parts, amounting to \$639.53.

Remember, of course, that in selling parts or supplies from one department to another in your business, that they should be charged at cost.

For example, you took, we will say, an axle or a wheel, amounting to \$60 from the Parts and Accessories department for this job. You would make out a sales ticket similar to a customer but you would charge it to repair department, entering it on Form 1 under All Other Accounts to Repair Department, Parts, and crediting this amount to the Income column, Parts and Accessories.

The same would apply to oil and grease or any other supplies that were used by the repair department. After you have entered all of these charges against the repair department, you will have your total as shown by the total cost of the job. At the end of the month, assuming that this was the only job that your repair department executed, you would show an income under Repair department on Form 1 of \$900 and on the Debit side of Form 1 you would show charges against the repair department, Expense account, for various charges such as parts, oil

and grease and under your Expense account on Form 2 for the Repair department you would show your expense for the labor and so forth. Adding these all together, you would find that you had lost a net amount of \$243.87 on the job. Forms 1 and 2 will not show you the exact profit or loss on each particular job, but your repair department cost tickets or envelope should show you this.

When you take a used car in trade and make permanent repairs to it, you should charge these repairs to this car just as if you charged the car into your stock account when you purchased it. In other words, when repairs are made, they should be treated like repairs for a customer and instead of charging the customer on Form 1 you would charge under All Other Accounts, Car Stock, Used Car No. —, and credit the work to your repair department.

If such materials as bar iron, solder, and so forth, are used by the repair shop then these should be charged to the repair shop expense called Supplies or Materials. If they are used by the Parts and Accessories department, they should be charged to that department.

How to Charge Postage

System Editor: Will you please tell me how to handle the following: We send a part to be repaired, paying postage or express. Then we charge this back to the customer.—Miss Grace Smith, C. M. Phinney's Garage, Russell, Kan.

Answer—We will assume that you returned a part to the factory for repair, paying the postage or express. We will assume that this part was worth \$5 and that the expressage was 50 cents.

In order to have a complete record of the part being returned to the factory, you would enter on Form 1 when you returned the part, a charge under the All Other Accounts column on the Debit side to the factory for \$5 and on the Credit side of Form 1 you would credit your customer with the same amount.

The factory would then return the part to you with a bill for the repair and the incoming express. We will assume that this amounted to \$4.50.

When the part was received, you would make an entry on Form 1 as follows: Under Customers' Accounts on the debit side, you would charge your customer with the cost of the part, which was \$5, and the repair, which was \$4 and the express amounting to 50 cents. A total charge of \$9.50. \$5 of this charge offsets the credit that you gave the customer when you returned his part to the factory. The balance of the charge represents the cost of repairing the part that you received from your customer.

Under One General Head

System Editor: In connection with the garage I have a vulcanizing plant and battery repairing and charging station, so wish you to tell me what heading these would come under in your system, also have a blacksmith outfit, and oxy-acetylene welding.—Buena Vista Garage, Buena Vista, Col.

Answer—Your vulcanizing plant, battery repairing, charging station and oxy-acetylene welding department, you should include in the one general head of Repair department. It is very nice, of course, to have each separate department of your business separated, but there is a limit to this when it requires such a volume of work to keep each one separated. For example, if we designed a system for you to take care of each one of these departments in addition to those already operated by the average garage, you would have a book that would be unwieldy and cumbersome or you would have a number of books that would mean more trouble and expense to you than it was worth. However, if there are some departments with headings that you do not use, I would suggest that you use these for the most important part or department of your business.

This Transaction Is Simple

System Editor: If we purchase a car from the factory—say \$2,000—and include in the order a demountable top at, say, \$300, and a cover at \$5, and the freight on the shipment amounts to \$30—would you put the total of the car, the top and the cover—\$2,305—under stock accounts, and the freight \$30, under Expense, Car Sales? If so, then how would you handle the transaction if we afterwards sold the car without, say, the top, or without both the top and cover, and kept the latter in stock? Also, in selling a car which includes extra parts, cannot the latter be itemized in any way?—John J. Gibson Co., Buffalo, N. Y.

Answer—The total cost of the car, including the demountable top and cover and freight, will amount to \$2,335. In accounting for the purchase of cars, we would consider freight expense, in that you have had to pay this to deliver the car to your salesroom, and this should be written on to the expense account as soon as the car is purchased. The car plus the top and cover are called a part of your inventory, or an asset and the entry for this particular car would be made as follows on Form 2: On the credit side under All Cash Paid you would draw your check to the order of the factory for \$2,335 and on the debit side under inventory or stock account, you would make these entries:

Car No. . . , \$2,000; demountable top, \$300; cover, \$5, and under the Car Sales, Expense column, you would enter \$30 as freight. Your entry now is completed as far as getting the car into your stock is concerned.

You next sell the car, we will say, for \$2,500, which will include the cover but will not include the demountable top.

Your entry for this would be on Form 1 and we assume that you received cash and placed this amount, \$2,500, on the Debit side of All Cash Received.

On the Credit side you would place a similar amount, less \$30, which was for freight, in the Car Sales, Income column, and the \$30 for freight you place on the credit side under All Other Accounts and credit this to your Car Sales, Expense of freight.

This credit of \$30 offsets the charge that

you made when you purchased the car. Now you have a credit under Car Sales for \$2,700 and you have to charge yourself with the cost of the car and show that it was taken from your stock.

Assuming that this is the only sale that you have made during the month, at the end of that time, on Form 2, you would make the following entry:

Under the Car Sales department, Expense column, you would charge cost of car, \$2,000, cost of cover, \$5, and on the credit side of Form 2, under All Other Accounts, you would credit your Car Stock account, \$2,005.

Now in order to find your profit on car sales, you subtract your car sales expense column from your Car Sales Income column, and if you did this on this particular transaction you would subtract the cost of cars sold amounting to \$2,005 from your Income on Cars sold amounting to \$2,470, leaving you a profit of \$465 on the transaction.

Now if you should check up your Car Stock account you would find that you had a charge of \$2,305 and you are crediting the Car Stock \$2,305; subtracting one from the other will leave you in your Car Stock \$300, which by checking up you will find is the value of the demountable top, which was not sold with the car.

Simple Inventory System

System Editor: Allow us to compliment you on your efforts to boost the garage men's business ability. This indeed is a very essential point.

In regard to our system of bookkeeping. This is not as satisfactory as it might be, owing to the fact that we do not have sufficient time to look after this end of the business as we would like. We do considerable general repairing together with machine work. We also handle Stoddard-Dayton parts for the Pacific Coast. Most of these parts we make here, but of course there are some we order from the factory. As yet we have not been very successful in keeping books to show exact profits. This stock, however, is inclined to move slowly, and as we have been very busy lately, we have neglected to take inventory.

We have just recently taken over the agency for the Van Sicken speedometer of Elgin, Ill. These parts have been consigned to us by the factory.

Most of our work up to the present time comes under the guarantee of the instrument. The defective parts are replaced and returned to factory for credit. We want to keep track of parts returned as well as those sent for repairs. What we want is a system to keep these different branches separate. Would your system be practical for our line of business?—Shepard, Thomason & Co., 118-120 East Tenth Street, Los Angeles.

Answer—What you need most of all is a quick running inventory, especially as to your parts and accessory stock. We are sending you samples of the Motor World Inventory Card, of which there are two sizes, and you will notice from these cards that you are able to tell from whom you purchased the part, the cost of the part and the selling price, and what remains in stock. We would suggest that you use these cards to denote parts that have been returned to the factory and to denote parts that you hold in your stock, from whom they were purchased, and so forth.

Crediting Defective Parts

System Editor: Mr. A. buys a new car; after a few weeks he finds one of the connecting rods valued at \$1.50 (retail price) is defective. He buys a new one from the dealer, paying cash. The dealer then sends the defective part to the company, and receives credit for \$1.12, the 38c. is for discount allowed when the first rod was pur-

chased, and then the dealer gives Mr. A credit for the \$1.50. Please let us know what the entries would be.—Buffalo Motor Co., Buffalo, Okla.

Answer—When you delivered your customer the part in exchange for the defective one, you would make the sale just as if it was the first transaction. You would charge your customer \$1.50 and you would credit the amount to your income sales of parts and accessories.

The next transaction is the return of this part to your factory, and in order to keep your transactions all clear, when this part was returned you would charge it to the factory at the list price, not knowing, of course, just what credit you are going to receive and the transaction would be made on Form 1 as follows:

Under the All Other Accounts column on Form 1, you would charge factory account \$1.50, and under Customers' Account, on the credit side, you would credit your customer with the same amount.

Later on, the factory advises that they have given you credit for \$1.12, which is 38 cents less than what you charged them when the part was returned. You then make an entry on Form 2 as follows:

You would charge under All Other Accounts, on the debit side of Form 2, Income, sale of parts and accessories, 38 cents. On the credit side of Form 2 you would credit your factory with the same amount.

What Every Salesman Should Know

About

Axles

REAR axles have two fundamental purposes—first to carry the weight of the car and, second, to take care of the car propulsion. The differences in rear axle design are due to two purposes—first to separate the weight carrying, propulsion and bending stresses and, secondly, to make the axle accessible.

In passenger car practice axles are known as floating, semi-floating and three-quarter floating.

The floating axle is one in which the weight is all carried on the axle housing and the axle shaft only transmits the driving stresses.

The semi-floating axle carries a certain portion of the driving load on the axle shaft.

The three-quarter floating type is quite similar to the semi-floating, the difference being in the layout of the axle bearings.

The three types can be readily distinguished by the bearing mountings. In the floating type the wheel bearings are on the outside of the axle housing. In the semi-floating the bearings are inside the axle tube and inside the wheel. On the three-quarter floating the bearings are on the outside of the tube, generally in the center line of the wheel. The axle shaft, however, takes part of the vehicle load.

These are the three methods used to meet the requirements demanded of an axle, and from what has been said,

The result would be that you have recorded the return of a part and charged it to the factory, and you have adjusted the credit that they gave you by crediting the factory, and, at the same time, you have shown a sale and a charge to your customer, and, later on, a credit to your customer when the part was returned to the factory.

Portland Helps Preparedness

PORTLAND, ORE., MAY 10—Members of the Portland Garage and Repairmen's Association decided at their annual meeting to offer their mechanics and shop equipment to the Government in the event of military need, without charge. This means that if emergencies arise a majority of the automobile repair shops of Portland will be at the immediate command of the military authorities. R. D. O'Brien is president of the association, V. C. Undee, secretary, and Fred Dundee, treasurer. Until recently the association employed a business manager, but the members have now decided to vest the management in the hands of an executive committee composed of the officers, who are vested with authority to settle disagreements which may arise over price-cutting and other matters of mutual importance.

the advantages of each type are quite evident.

In the floating design, the shafts can be easily removed for repairs; all it is necessary to do is to withdraw them from the housing by pulling them out. Thus the claim of accessibility is that most frequently mentioned in connection with floating axles.

The claim for the semi-floating and three-quarter floating is that they can be made to accomplish the work readily, although having lighter proportions. The reason for this is apparent when the wheel bending or skidding stresses are considered. The bearings which take the stress caused by rapidly rounding a corner in the floating axle are those on either side of the wheel mounted upon the housing. Since these are located in this particular position, they must be fairly close together, requiring good bearing strength to compensate for the large moment which is exerted against them.

In the other type of axle, where the bending stress is taken through the drive-shaft, it will be seen that the axle shaft tends to fulcrum about the outer bearing and to rest against the inner bearing in meeting the stresses.

In other words, the inner bearing is the power in a lever of the first class which fulcrums about the outer bearing for the purpose of withstanding the bending stresses. Both bearings do the work.

SCIENTIFIC CONSTRUCTION

GARAGES □ □ SHOWROOMS □ □ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

Complete Plant 45x60 ft.

Editor Motor World: I had thought of a garage 45 x 60, principally for Ford cars. This is a town of 2000 and I would like to build it as cheaply as possible, because my means are somewhat limited. Brick is the cheapest material here and there is plenty of sand and gravel.

We are 12 miles from Columbus, O., a city of 200,000, and there are two other garages.—H. L. M.

Answer—We would suggest that you make your building deeper and should be

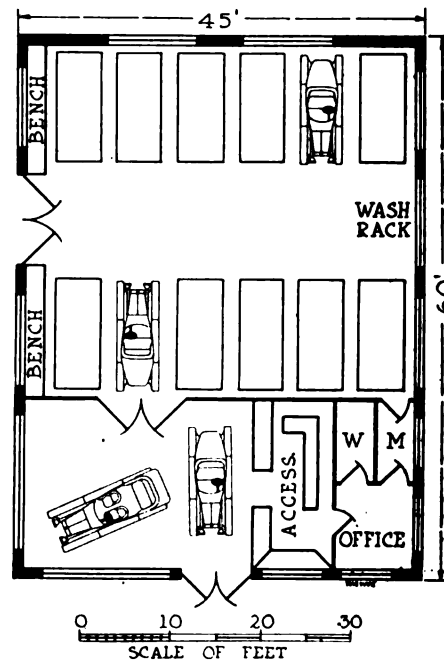
glad to draw a new plan showing a much more attractive arrangement with a building about 45 x 70.

Asbestos-Covered Metal for Buildings

Asbestos protected metal roofing and siding affords a comparatively light, permanent structure to be obtained without undue cost. It is sheet iron, covered on both sides with a layer of asbestos. Thus it is rust-proof, fire-resisting and does not require painting. Asphalt is used because it is the best protector against corrosion. It is a thick, elastic, gas and moisture-proof film which remains unbroken as long as it is protected from light, heat and solvents, and this is covered with a layer of asbestos felt. Finally the asbestos itself is protected from the softening action of moisture by a special waterproof-



The showroom is at the left and the store and office at the right

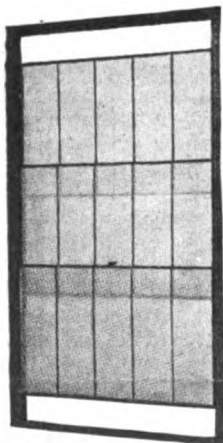


Compact corner plan for small dealer. The shop and garage are one, the bench being at the side adjacent to the entrance

Five Steel Fireproof Windows

Maximum light, abundant ventilation, fire protection and low cost are the features of Fenestra steel windows made by the Detroit Steel Products Co., Detroit.

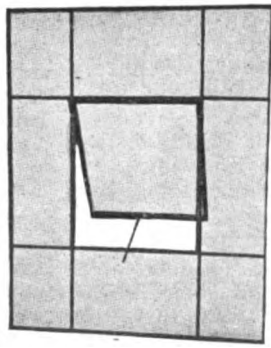
All six designs may be used in garage construction. Two, however, are also suitable for offices. All are fireproof and all give good ventilation.



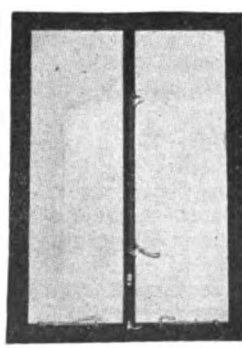
Vertical sliding sash for buildings where screening is necessary



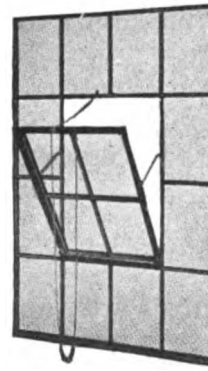
Vertical pivoted unit for use where maximum ventilation is required



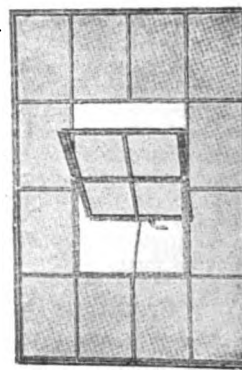
Casement for offices, stores and semi-public buildings



Detroit casement with double swinging leaves for offices and apartments



Standard design with horizontally pivoted window for garages and shops



Bottom hung unit, operated by chain and spring catch

ing process. The asbestos is permanently colored by the addition of mineral pigments which impart an attractive color and render painting entirely unnecessary.

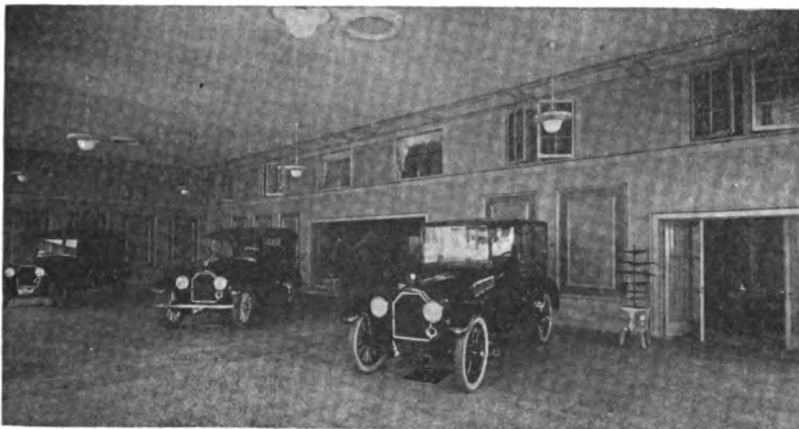
The asbestos is an insulator, keeping out the heat or the cold as the case may be.

It is supplied either in flat or corrugated sheets of various styles.—Asbestos Protected Metal Co., Pittsburgh, Pa.

Fine Building for Stearns in Los Angeles



Attractive exterior of new showroom, garage and service station of Lynn C. Buxton, Stearns dealer, Los Angeles



Left—The showroom is finished in old ivory shaded into antique ivory, and the furnishings have been carried out in rich, mellow tones to harmonize. The offices are on the mezzanine floor. The alcove at the left is for salesmen's desks and here also is the stairway to the balcony. In a corresponding position at the right is a large opening into the garage provided with double folding doors



Right—The garage is light and airy, and without posts. It is finished entirely in white. The shop is at the rear, and is separated from the garage by sliding doors



Two views of the offices on the mezzanine floor. Lynn C. Buxton's private office is at the right

Queries Answered

WE shall be glad to furnish information to anyone free of charge, but please be careful to give all the facts bearing on the matters you desire information on. All inquiries are answered by mail whether they are published or not, so kindly do not fail to enclose a two-cent stamp and your correct name and address. Please be sure to write plainly.

Tool Equipment for a Country Garage Accessories for Transient Trade

EDITOR Motor World: I have recently purchased a property upon which there is located a garage in which I intend to start business May 1. This is a good stand on the road to the Delaware Water Gap, the next town, in fact. Hundreds of tourists pass this way to the gap. Any advice you may be able to give me as to what I need most in the line of tools, what line of accessories is best to keep in stock, all this to be considered for a beginner, and also what is the best way in your opinion to get as close as possible to the cash way of doing business. I shall be very thankful and appreciative of any suggestions you may be able to offer. I am a subscriber to the Motor World and like it very much. I thank you for your promptness in mailing same.—Griffith J. Davies, 36 S. Fifth St., Bangor, Pa.

Answer.—The question as to what tools you should have is a very broad one. You should have a full set of various styles of wrenches, including monkey wrenches, pipe wrenches, S-wrenches, socket wrenches, etc., cold chisels, hammers, mallets, files, screwdrivers, etc. You should have a breast drill and possibly a small drill press also. Of course, with this equipment you will need a set of drills, and in addition you should have taps and dies for the sizes of threads usually employed on automobiles.

Carbon Burning Equipment

You should have a carbon burning outfit, a vulcanizing equipment and probably a battery charger, although this will depend somewhat on how much you will get of this battery business. The vulcanizing equipment is very important. You should plan to make repairs over night when required. For tube repairs, especially those made at night, you may find it advisable to use a small tube vulcanizer such as is made for the use of motorists.

As far as machine tools are concerned, the most important ones are a drill press and an emery wheel. A lathe is also very useful, but not as essential as the other two. An arbor press is also a very desirable piece of shop equipment.

It is almost impossible to fully specify the line of accessories which you should sell. First of all, you should be careful to sell only high grade goods and prefer-

ably advertised goods, because you will find it easier to sell them. You should also have them well displayed and neatly arranged in a store in one corner of your garage. Do not try to sell accessories from your repairshop or a dark stockroom.

Specialize on Transient Accessories

If you are going after transient trade, you should make a special point to carry things which passing motorists will want. These include standard brands of shoes, tubes, oils and greases, spark plugs, fuses, electric bulbs, batteries, etc., and in addition, we believe you would find it advisable to sell cigars, cigarettes, and candy. Be careful in purchasing these articles to select those for which there will be a good demand and do not make the mistake of buying a lot of stuff which will grow stale before it is sold.

There is only one way to start a cash business and that is to inform all your customers that hereafter your business is going to be strictly cash and then you should make no exceptions. If you stick firmly to this rule, you will find that you will have little difficulty in educating your customers to the advantages of paying cash.

In effecting this reform you should take the stand that you are doing this

not so much to protect yourself, but rather because it is a more preferable way to do business, from the customers' standpoint.

It is a fact that in garages where business is strictly cash the customers prefer this arrangement to buying on credit and in many cases it would be difficult to persuade them to return to the former method.

It is less trouble to pay cash and thus close the deal right on the spot instead of delaying its consummation for two or three months. The customer knows that there is no chance for error with this method and that he cannot be overcharged, either intentionally or accidentally.

We shall be glad to answer any further questions. We hope you will keep in touch with us regarding the various problems which come up in connection with your business and shall be glad to do all we can to aid you.

Information on Willys Eight and Super-Six Engines

Editor Motor World: Give power curve of Willys-Knight eight and Hudson Super-Six motors.

What are compression pressures of the above two engines?

What is mean effective pressure?

How many miles per gallon of gasoline claimed for the above two cars in actual service?—Walter W. Taylor, Shreveport, La.

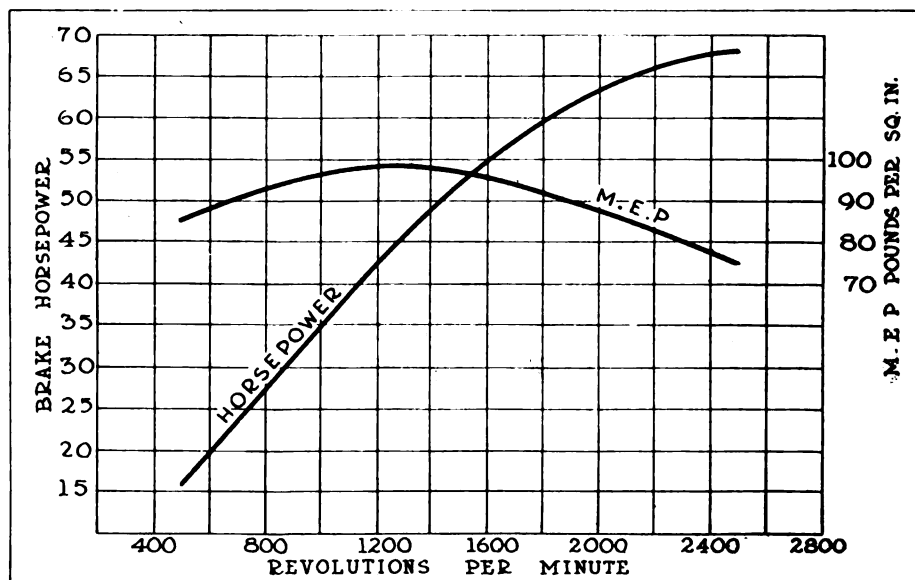
Answer.—Drawing shows a power curve of Willys eight, also curve showing maximum mean effective pressure, which occurs at approximately 1300 r.p.m.

The compression pressure is 65 to 70 gage.

Miles per gallon, under ordinary conditions, will vary from 12 to 16.

We are not in a position to give you the compression curve as plotted over various motor r.p.m.'s, but the compression of the Super-Six motor lies between 75 and 80 lb. per sq. in. at 100 r.p.m.

We have no chart at hand showing the mean effective pressures at various



Horsepower and mean effective pressure curves of the Willys-Knight Eight

speeds, but you can easily compute this (as based on brake horsepower) from the power curve which we are sending to you.

The Hudson Motor Car Company does not guarantee any particular mileage to a gallon of gasoline, as the economy secured is entirely up to the driver. Hudson cars run from 12 to 15 miles ordinarily on a gallon of gasoline.

Getting Acquainted With the Bank

Editor Motor World: I am a subscriber to your magazine, and I like it very much, in fact, I would not do without it. Of course, my line is in selling motorcycles, but that is pretty much like selling cars.

I read the piece you had in your magazine lately about getting in touch with a banker now and lend money, so the machines can be stocked up now ready for delivery in the spring.

I would like to ask if you know of the banking house who does most of that kind of work.—J. R. Nelson, J. R. Nelson Motor Co., Brooklyn, N. Y.

Answer—As to getting in touch with a banker we believe every business man should have relations with a bank. If you have a checking account you perhaps can get acquainted with some one in that bank. This is something that every business man should begin to do as soon as he starts in business. There are many little excuses you can find for going to a banker and asking him questions, and in that way he will get so he knows you when he sees you, and from that you can build an acquaintanceship between yourself and the bank.

As to your desire to borrow money on machines, you ought not have a great deal of difficulty in getting something on new motorcycles. If you do not know

of any other way to do this, we suggest that you take the matter up with some good business man who is a friend of yours and see if he cannot put you in touch with a banker.

There are also securities companies which are making a business of loaning money on automobiles. Perhaps one of these would help you out. We do not know of any banking house that specializes in this work, although there may be one in your section which most of the motor people patronize. Why not ask some of them?

Mysterious Motor Trouble

Editor Motor World: I have a 5-ton truck which has recently been overhauled for preignition. When this motor has been run long enough to warm up the engine and the switch has been turned in the neutral position, the motor will keep on running ahead, sometimes on one and then on two cylinders. This is not due to ignition trouble, as it will continue to run with all four spark plug wires disconnected. I have had the cylinders removed and all little projections cut off, and all carbon carefully removed and cylinder domes and piston heads polished.

This has puzzled some of the best repairmen in this city. When the wires are removed from the plugs, how does any ignition get in the motor? Why does the motor run ahead instead of backwards? I have had 10 years' experience with gas engines, and though I have spent a lot of time on this one thing, I can find no cause for it. The motor starts readily, has good power and although I can see that this does no harm I would like to stop it. It will stop after it has exploded a few charges of gas, sometimes two and again as many as 10 or 15. It acts worse the first time

it is stopped after standing long enough to get thoroughly cooled off. I have had it run for 10 or 12 explosions then stop, and then I have started it 30 times and it would stop perfectly each time, then let it get cold and start again, and then it would explode after turning off the switch just the same. If you can advance any theory or suggest any remedy for this I would like to hear it. If it was preignition of any sort I think the motor would run backwards, and it would be worse after running a long time or continued running and stopping. This motor has been taken down twice for this trouble by different men but has not been located.—G. White Van Auken, 765 Tremont Street, Boston.

Answer—Acting on the supposition that all the conditions stated in your letter have been fulfilled, the only reason that we can give for preignition in your motor is that your spark plug points are insufficiently cooled, become red hot and hence cause preignition.

You can readily determine if this is the case by installing plugs having exceptionally large electrodes.

It would seem, however, that the most obvious cause of preignition is due to some small obstruction in the firing chamber becoming heated and exploding the charge. However, we note that you state that the combustion chambers have been polished and we assume that this is not the cause.

After you have substituted the plugs with the heavy electrodes and determined whether the plugs are the cause of the preignition we shall be pleased to hear from you.

Preignition would not cause the motor to run backwards any more than an advanced spark would. Preignition may cause a backward thrust on the crankshaft, but the stored energy in the flywheel keeps it going forward.

112 Fourth Place, Brooklyn, N. Y.

J. R. Nelson Motor Company

112 Fourth Place, Brooklyn, N. Y.

Agency for Building Standard, Buick, Chevrolet and the Cyclometer

MOTORCYCLES

Full Line of Parts and Supplies

112 Fourth Place, Brooklyn, N. Y.

J. R. NELSON MOTOR COMPANY

112 FOURTH PLACE, BROOKLYN, N. Y.

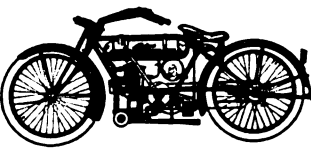
AGENCY FOR BUILDING STANDARD, BUICK, CHEVROLET AND THE CYCLOMETER

MOTORCYCLES

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J. R. NELSON MOTOR CO.

BARGAINS IN USED AND REBUILT MOTORCYCLES



FULL LINE OF PARTS AND SUPPLIES

112 FOURTH PLACE
BROOKLYN, N. Y.

Above—Suggested letterheads for a dealer in Brooklyn, N. Y.

Left—Original letterhead of Brooklyn dealer, whose letter is printed above

Repairshop Shortcuts

From The Motor World Roadman

(No. 1184) ELECTRIC DOOR OPENER

Tool and stock rooms should only be accessible to the proper persons, yet key or mechanically operated locks are troublesome. An electrically operated lock is most efficient. Such a lock consists of a latch, operated by magnets from a storage battery. The feature is the use of a combination electrical switch, such as is used on an automobile ignition circuit. This switch is mounted outside the door, and pressure on the buttons in the proper sequence completes the circuit, opening the door. A simple push button permits the door to be opened from the inside.—Gordon Ream, U. S. L. Service Station, Detroit, Mich.

(No. 1185) ACID CARBOY ROCKER

Two wooden rockers nailed to the bottom sides of the sulphuric acid carboy permit ready tilting for transferring the acid to a smaller container. Increased leverage is provided by a vertical handle nailed to the rear of the carboy. By making the handles and rockers of hard wood, and attaching and removing them with car, the set may be used many times.—Henry Fowler, Lewis-Allen Co., Jackson, Mich.

(No. 1186) LEAD PUNCH

For the purpose of identification, storage batteries should be marked the moment they come into the shop for charging or repairs. This may be done most satisfactorily by means of lead tags, as the lead may be easily stamped with the serial number, and will not corrode. These tags may be made by cutting notches across a lead strip, stamping the work order number on each, and then punching holes for tacks in the ends. The tags are broken from the strip as required.—Gordon Ream, U. S. L. Service Station, Detroit, Mich.

(No. 1187) AXLE HOUSING DIE

Threads on the ends of the rear axle housing occasionally become crossed, or partially stripped. Due to the fact that the threads are small, and on a large tube, it is difficult to start a solid die straight. A hinged and split die that may be opened and clamped onto the threads may be started straight. Such a die should be made from a solid plate, and split after the hinges, clamps and expanding plugs have been fitted. Soft steel may be used, providing the jaws

are case hardened.—Jas. M. Howard, Southern Motors, Inc., Louisville, Ky.

(No. 1188) BODY HOIST

Bodies are difficult to hoist without marring the finish. This may be readily done by the use of a steel framework that holds the lifting chains away from the sides of the body, and equally distributes the lift to the four corners. Such a framework may be used with any hoist for direct lifting. A more complete lifting set comprises an electric hoist mounted on an I-beam track, so that one man can remove or replace the body and carry it to any part of the shop.—Hupp Motor Car Co., Detroit, Mich.

(No. 1189) SOLDERING TORCH LIGHTER

This is a combined soldering iron stand and torch lighter. The iron is held in a horizontal position above the bench, on an L-shaped strap iron stand. The torch is mounted on a swiveled connection, so that it may be swung beneath the end of the soldering iron. Attached to the stand by a short copper wire is a small piece of carbon, so placed that in swinging the torch to position its tip brushes past the carbon. As the torch is connected to one side of a battery circuit, and the stand to the other, a spark results, lighting the gas. No time is lost hunting for matches.—Gordon Ream, U. S. L. Service Station, Detroit, Mich.

(No. 1190) ELECTRIC LEAD BURNING

Old and oxidized terminals do not burn readily to the posts. The burning, however, may be facilitated by the use of an electric lead burner. Such a burner comprises a pointed carbon pencil, held by a setscrew in a small pipe-T fastened to a wooden handle. This pipe-T is connected to the negative terminal of an 8-volt battery, and the positive terminal is connected to the terminal to be burned. An arc is formed by contact between the carbon and the terminal

to be burned, supplying the heat to melt the lead. It will be found advisable to have the battery on charge at the normal rate.—Henry Fowler, Lewis-Allen Co., Jackson, Mich.

(No. 1191) LOCKING VALVE TOOL

Two features are incorporated in this valve tool. The first is that it may be locked in the open position, and the second is that it has an exceptionally high lift. Locking is effected by a ratchet and cross bolt, the high lift being due to the wedge shape of the jaws. The tool is strip steel throughout, the strips being forged to shape and then riveted together. Durability is increased by case hardening the jaws.—Reo Garage, Kalamazoo, Mich.

(No. 1192) EXPANDING CYLINDER LAP

In addition to easy operation, this lap possesses a valuable expanding feature, due to the construction of the handle, which is strip steel, bent U-shaped, carrying a pipe handle at the upper end, the lower ends pressing out against the cheeks of the wrist pin bosses on the split piston. This causes the piston to exert a constant pressure on the sides of the cylinder wall, automatically, without attention on the part of the workman.—F. S. Rowan, Buhl Auto Co., Jackson, Mich.

(No. 1193) COLLAPSIBLE PULLER

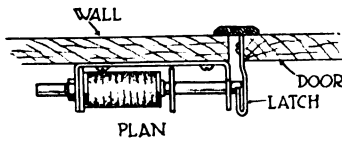
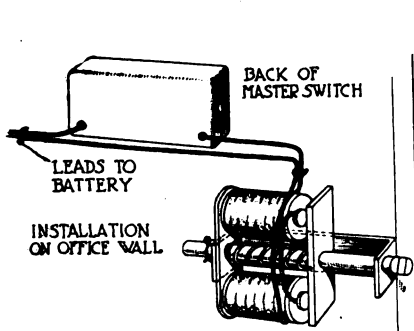
Certain gears, flanges and bearings are so placed that it is difficult to attach the jaws of an ordinary puller behind them. In such cases the use of a collapsible puller facilitates the work. It has two jaws, that may be inserted independently behind the part to be removed, and two S-shaped cross members carrying the pressure screw. After the jaws are inserted, the S-shaped pieces are swung into place and locked by the pressure of the screw.—F. S. Rowan, Buhl Auto Co., Jackson, Mich.

BATTERY TERMINAL STORAGE

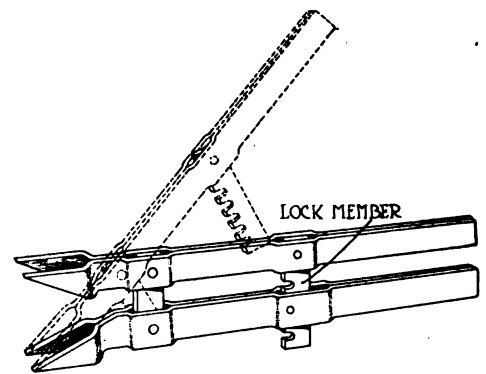
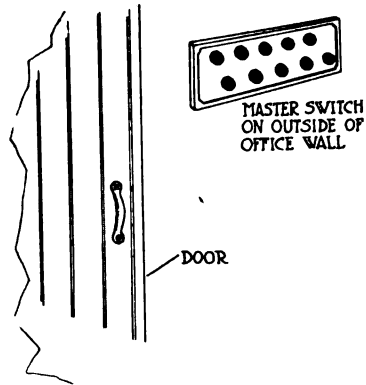
Lead storage battery terminals and plates oxidize if stored without protection in the charging room due to the acid particles in the air, and makes burning difficult. By packing the terminals and plates in pipe sawdust the air is excluded and oxidation prevented.—Gordon Ream, U. S. L. Service Station, Detroit, Mich.

You Have Benefited

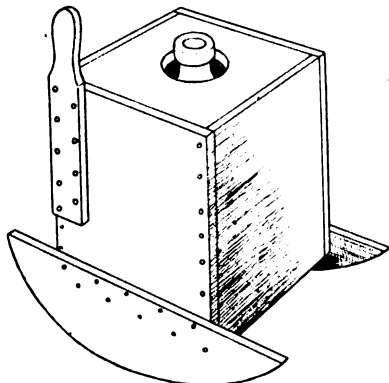
by the Shortcuts appearing in these pages. Send us some from your treasure-box of experience. A rough sketch will suffice.



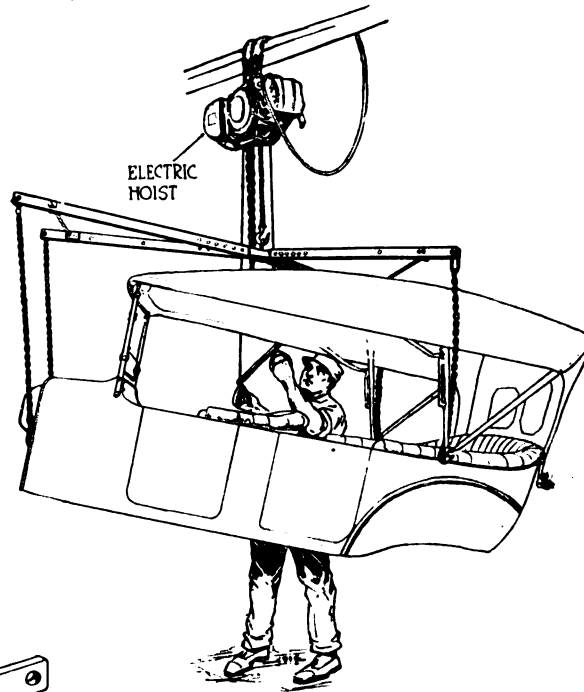
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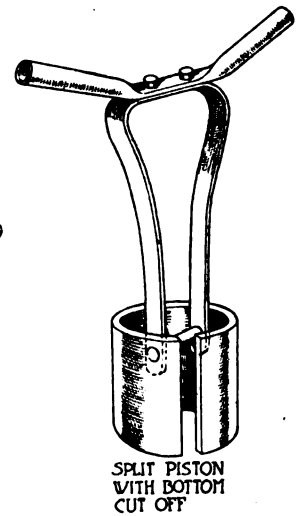
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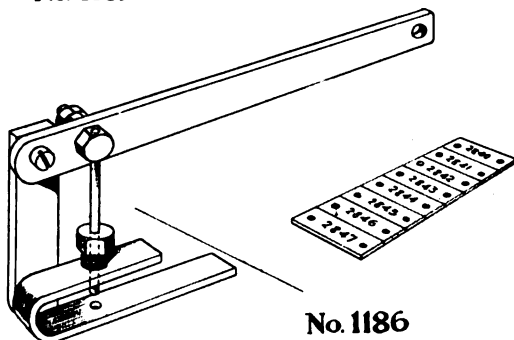
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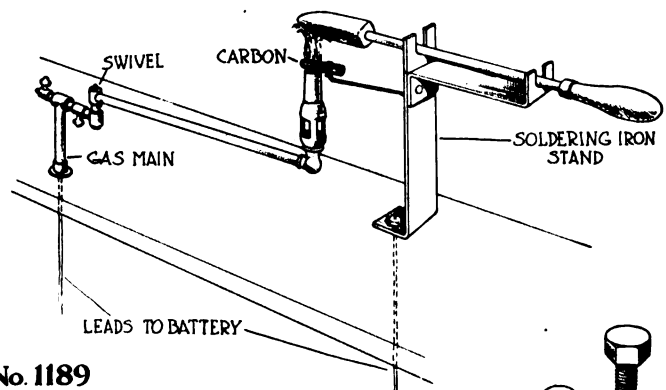
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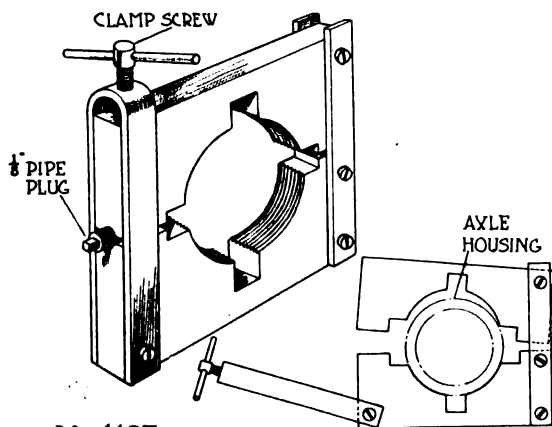
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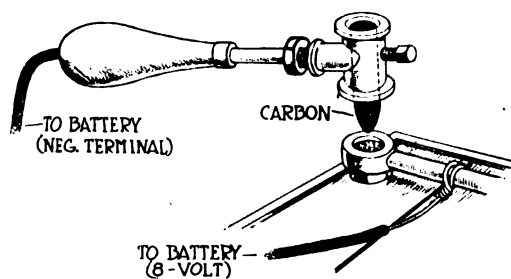
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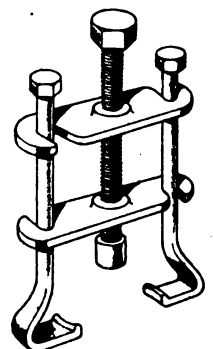
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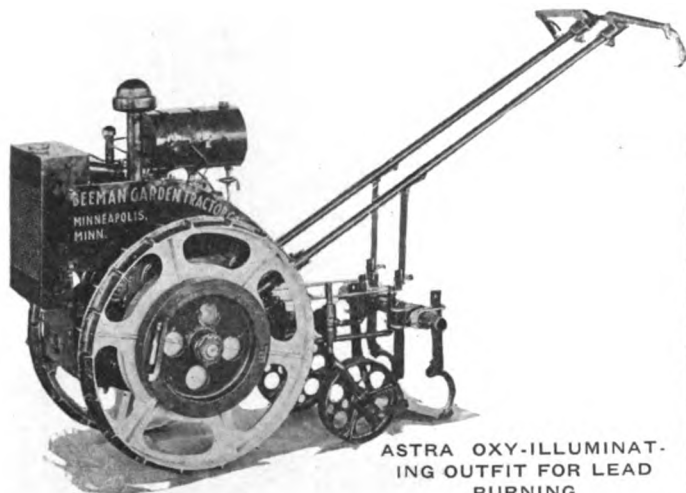


No. 1193

□ □ Accessories □ □

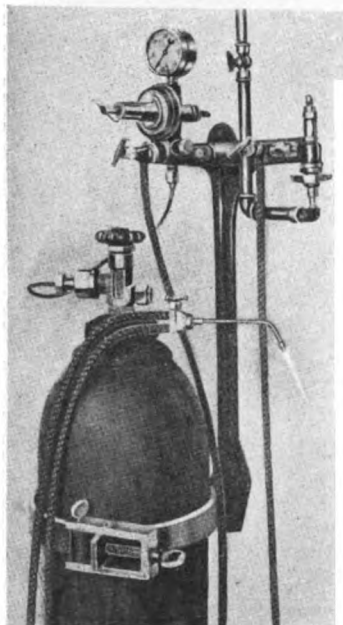
BEEMAN GARDEN TRACTOR

A 1-hp. tractor for garden cultivation. It is handier than a horse-drawn unit and is quicker and less arduous than working by hand. It is supplied with various blades for cultivating, plowing, hilling, etc. In addition, it may be used as a stationary engine for running the fanning mill, grindstone, feed grinder, cream separator, churn, etc. Price, \$225.—Beeman Garden Tractor Co., Minneapolis.



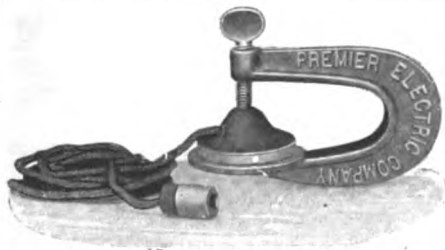
ASTRA OXY-ILLUMINATING OUTFIT FOR LEAD BURNING

Oxygen and ordinary illuminating gas are used for lead burning. The outfit consists of a tank of oxygen, pressure regulator, gage and torch.—Bradford-Ackermann Corp., Forty-second Street Building, New York.



IT'S IT VULCANIZER

An electric tube vulcanizer for repairing small punctures. The heating element is contained in the foot of the screw clamp. It may be operated from a 6- or 12-volt storage battery. Price, \$1.50.—Premier Electric Co., 4035 Ravenswood Avenue, Chicago.



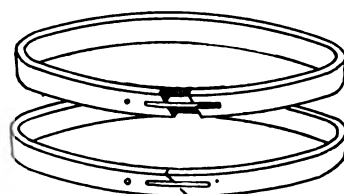
WHIZ CHEMICAL SPECIALTIES

Waterproof cushion dressing is for renewing the finish on cushions, tops, tire covers, or any leather, pantosote or mohair material. Price, pts., 80 cents; qts., \$1.50. Whiz Kleer Glass is a paste which will keep the windshield clear in stormy weather by spreading the water. 3-oz. can, 25 cents. Other compounds and their prices are: Top dressing, pts., 50 cents; qts., 85 cents;

top enamel, pts., 75 cents, qts., \$1.25; lamp enamel, ½-pts., 50 cents, pts., \$1; reflector polish, 4-oz. can, 25 cents; radiator cleaning compound, 75 cents; stop leak radiator compound, 75 cents. Whiz roadside hand cleanser is a compound for cleaning the hands without the use of water by applying a few drops of the liquid and rubbing the hands clean with a piece of waste. Price, 25 cents. Nugloss is a liquid polish which tends to conceal scratches, remove smoky or bluey tinge and renew varnish, ½-pts., 25 cents; pts., 50 cents; qts., \$1.—R. M. Hollingshead Co., Camden, N. J.

SEAL-TITE PISTON RING

A single-piece ring with a tongue member designed to make a tight joint. The ring is individually cast of close grained gray iron and is made in all standard and oversizes. Price, 75 cents.—Seal-Tite Piston Ring Co., Minneapolis.



KOR-KER PUNCTURE COMPOUND

A liquid which is pumped into the tube and occupies about 6 per cent of the space. It is said to prevent punctures and eliminate porosity in the tube, and inasmuch as the tire is rendered practically air-tight there is less danger of it being operated at less than proper inflation pressure. All branches are authorized to make free installation of the preparation if lost within one year.—Alcemo Mfg. Co., Newark, N. J.

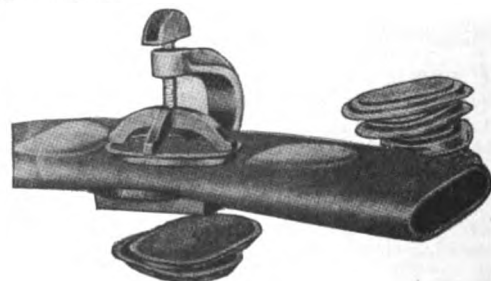


KIESLING VULCANIZER

A clamp for use in applying patches which are furnished with the outfit. The patch is placed on the puncture, a chemical wafer is put on the patch, the clamp is applied and then the wafer is lighted with the result that the patch is vulcanized. The operation takes 5 min. Price, \$2 with 1 doz. patches.—Henry M. Kiesling & Co., Real Estate Trust Building, Philadelphia.

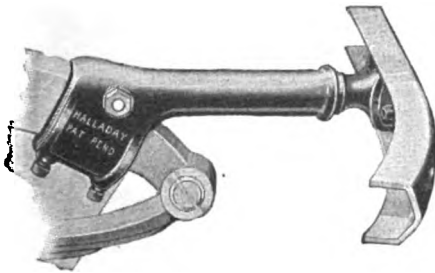
RADIATOR FLAG AND HOLDER

A silk flag, 4 x 6, mounted on a nickered steel staff with a small eagle perched on the top. The staff is carried on the radiator cap which must be drilled. The eagle is burnished gold. Price, 66 cents.—Art Metal Works, Newark, N. J.



HALLADAY BUMPER

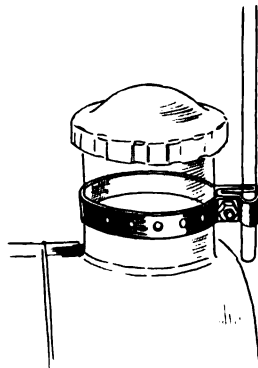
A new design has been brought out for cars with front aprons. The bumper clamp fits around the outside of the frame member and is locked in place at the top by a cross bolt with hooked end and at the bottom there are two cup pointed set screws which hold the clamp firmly against the frame. The bumper is supplied either with channel, diamond or circular bar. The shock is taken up by heavy steel springs concealed in the fittings which carry the bumper. The finish is black, japan, or japan fittings with nickel bar.—L. P. Halladay Co., Streator, Ill.

**S-V RUBBER PRODUCTS**

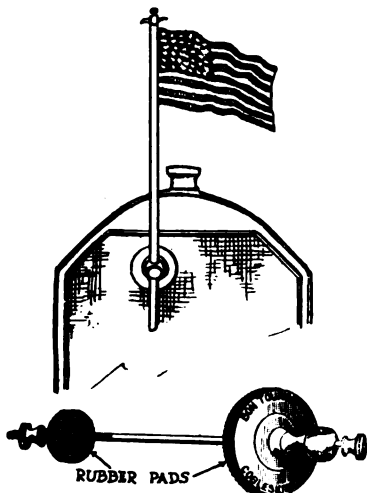
Self-vulcanizing rubber cement is used for cementing patches, splicing inner tubes, attaching leather to rubber, applying treads, etc., without the acid cure solution. Tube, 10 cents; ¼-pt., 15 cents; ½-pt., 25 cents; pt., 40 cents. S-V rubber putty is for filling cuts and sand holes, ¼-pt. cans, 40 cents. S-V combination is light enough for patching but heavy enough for plugging, thus combining the advantages of a putty and a cement.—Williams Mfg. Co., Camden, N. J.

STENMAN FLAG CLAMP

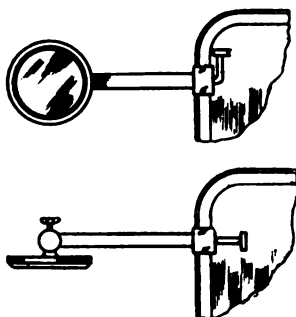
Adjustable to hold any size flag and will fit any radiator filler pipe. Tightening the nut clamps the flag and holds the bracket firmly to the pipe. Adjustment is provided by a series of perforated holes and the excess metal is broken off. Price, 25 cents in nickel or black enamel.—Stenman Wire Specialty Co., Worcester, Mass.

**GRIP TITE FLAG HOLDER**

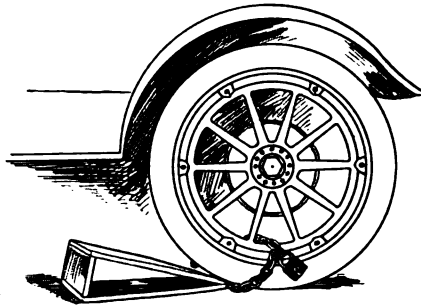
An adjustable flag holder which is attached to the radiator. No tools are required and there are no holes to drill. Price, 50 cents in nickel, polished brass or black.—Bon Tour Mfg. Co., Cobleskill, N. Y.

**CREW LEVICK TIRE SEAL**

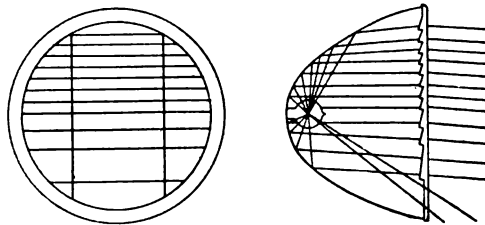
A liquid intended to render the tube puncture-proof by sealing any opening as soon as it is made. About 5 per cent of the space in the tube is taken up by the liquid. Price for 3 and 3½ in. tubes, \$1.50; 4 and 4½ in., \$2; 5 and 5½ in., \$2.50.—Crew Levick Co., Philadelphia.

**CARSAFE HOBBLE**

A new way to lock a car. A substantial V-shaped lock is chained and padlocked to one of the wheels, making it impossible to operate the car. Price, \$3.—Western Atlantic Engineering Co., 132 Nassau Street, New York.

**SMITH'S SURE SHINE**

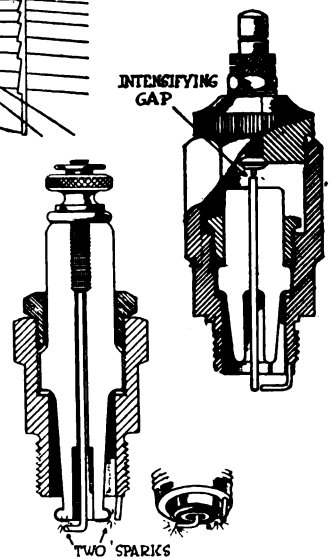
A cleaner and polish especially for enamel. It will remove scum, scale and dirt and restore the original luster, leaving a hard, dry finish which will not collect dust.—Harrison A. Smith, Pope Building, Washington.

**OSGOOD LENS**

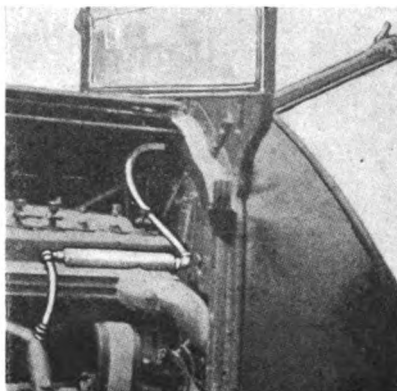
A headlight glass which throws all the light on the road, no rays passing above the horizontal. The glass consists of a series of horizontal prisms which deflect the light.—Osgood Lens & Supply Co., 2007 Michigan Ave., Chicago.

TWIN FIRE SPARK PLUG

As the name implies, there are two gaps and it is said that when one becomes filled with soot the other one will continue to furnish a spark. Price, \$1.—Twin Fire Spark Plug Co., Detroit.

**GRACE PNEUMATIC CONTROLLER**

Furnishes hot air to the manifold, thus acting as an economizer. It consists of a small, flexible tube leading from the steering post or dash to an enlarged pipe on the exhaust manifold. By the regulation of the valve on the steering post, more or less air may be admitted, thus varying the quality of mixture. The fact that the air is heated aids in vaporization. Price, \$10.—Grace & Co., 3205 West Washington Street, Los Angeles.

**LAWCO HOOD AND RADIATOR MASK FOR FORDS**

The original Ford hood is removed, and the new radiator shell, or mask, bolted on over the radiator. The sloping hood is then placed on the car. For all models previous to 1917, a metal ledge is supplied for the rear of the hood. This ledge is bolted to the dash of the car. Price, complete, \$17.50.—The Ospeco Mfg. Co., Ford Bldg., Detroit.

PROTECTO SPARK PLUG

Protection is afforded against breakage of the porcelain, against short-circuiting, and against too tight adjustment when attaching the cable. The porcelain insulator is entirely inclosed, the exposed portion of the plug consisting of a steel shell and a fibre cap. The porcelain is a petticoat design. There is a gap in the electrode just above the porcelain which is designed to intensify the spark. Price, \$1.50.—Vital Mfg. Co., 7500 Quincey Ave., Cleveland.

Type and Size of Electric Lamp Bulbs

Car	HEAD LAMPS		SIDE LAMPS		TAIL LAMP		DASH LAMP		Fuses Amp.	Socket	Wiring System	Type of Dimmer	Make of Battery	Style of Battery	Method of Focusing	Remarks
	Volt	Cp.	Volt	Cp.	Volt	Cp.	Volt	Cp.								
Abbott-Detroit	6-8	24	6-8	4H	6-8	2	6-8	2	....	Ediswan S*	Single	....	Willard	SC 304	....	*Dash Ediswan D.
Alter	6-8	18	6-8	4	6-8	2	6-8	2	....	Ediswan D.	Single	....	Willard	LBA-3-12	....
Allen	6-8	15	6-8	4	6-8	2	6-8	2	15*	Ediswan S.	Single	Resist.	Gould	BSL	Adj. screw	*Side, tail and dash fuses 5 amp.
American	6-8	15	6-8	4H	3-4	2	3-4	2	20	Ediswan S*	Single	....	Willard	LBA-66	Adj. screw	*Dash 1 amp double.
Anderson	6-8	21	6-8	12H	6-8	4	6-8	4	....	Ediswan S.	Single	....	Willard	SLB68A	Adj. screw	
Apperson	6-8	18	....	....	6-8	2	6-8	2	10	Ediswan D.	Double	Resist.	Willard	SLB68A	Adj. screw	
Arbuz	6-8	15	6-8	6	6-8	2	6-8	2	25	Ediswan S.	Single	....	Gen. Lead	135STR	....
Auburn 39	6-8	15	6-8	4	6-8	2	6-8	2	25	Ediswan S*	Single	....	Willard	LBA5-6	....	*Dash Ediswan D.
Auburn 44	6-8	15	6-8	4	6-8	2	6-8	2	....	Ediswan S*	Single	....	Willard	LBA6-6	....	*Dash Ediswan D.
Austin	6-8	24	6-8	4H	6-8	4	....	....	....	Ediswan S.	Single	....	Willard	AD30	....
Barley	6-8	15	6-8	4H	6-8	4	6-8	2	....	Ediswan S*	Single	....	Willard	SL-B68A	....	*Dash Ediswan D.
Bell	6-8	18	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	....	Willard	SL-B68	....	*Dash Ediswan D.
Biddle	6-8	21	6-8	4H	6-8	2	6-8	2	10	Ediswan S*	Single	....	Willard	SJR-3	....	*Dash Ediswan D.
Bimel D.	6-8	15	....	....	6-8	2	6-8	2	....	Ediswan S.	....	....	....	....	....	*Other models.
Bimel*	12-16	15	....	....	12-16	2	12-16	2	....	Ediswan S.	....	....	....	....	....
Brewster	12-16	40	12-16	4H	6-8	2	6-8	2	10	Ediswan S*	Single	....	U.S.L.	CD611B	....	*Dash Ediswan D.
Briscoe	6-8	15	....	....	6-8	2	6-8	4	10	Ediswan S*	Single	Resist.	Detroit	....	Adj. bulb	*Dash Ediswan D.
Bour Davis	6-8	15	....	....	6-8	2	6-8	2	....	Ediswan S.	....	....	....	....	....
Bulck	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	Ediswan S.	Single	....	Exide	3XC-13-1	....
Cadillac	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	Ediswan S.	Single	....	Exide	....	Adj. bulb	
Case	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	....	Willard	SLB-68	Adj. bulb	
Chalmers	6-8	15	6-8	4H	6-8	4	6-8	4	15	Ediswan S.	Single	Series	Willard	LBA8CAH6v	....
Chandler	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	....	Willard	SLB-SP4	....
Chevrolet	6-8	12	....	....	6-8	2	6-8	2	....	Ediswan D.	....	....	Willard	SL-3	....
Cole	6-8	15	6-8	2H	3-4	2	3-4	2	....	Ediswan S*	Single	Resist.	Exide	SL-5	....
Commonwealth	6-8	15	6-8	4H	6-8	4	6-8	2	....	Ediswan S*	Single	....	Detroit	3xc-15-1	Adj. bulb	*Dash lamp Ediswan D.
Crawford	6-8	15	6-8	4H	6-8	4	6-8	2	15	Ediswan S*	Single	....	Willard	SP-4	Gray & Davis	*Dash lamp Ediswan D.
Crow-Elkhart	6-8	15	6-8	8H	6-8	2	6-8	2	....	Ediswan D*	Single	Series	Willard	SC 304-4	....	*Tail lamp Ediswan S.
Cunningham	6-8	15	6-8	4	6-8	2	6-8	4	15	Ediswan S*	Single	....	Willard	SJR 5	Adj. bulb	*Dash lamp Ediswan D.
Daniels	6-8	18	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	Warner	Willard	SSB 610	....	*Dash lamp Ediswan D.
Davis	6-8	15	....	....	6-8	4	6-8	4	....	Ediswan D.	Single	Resist.	Willard	5-6J	Adj. socket	
Detroit	6-8	15	....	....	6-8	2	6-8	2	....	Ediswan D.	....	....	....	5-6HTK	....
Dispatch	12-16	21	....	....	12-16	2	6-8	2	2*	Ediswan D.	Double	....	....	LBA 5-6	....	*Fuses 1-2 amp in tail lamp, 1 amp in dash.
Dixie	6-8	15	....	....	3-4	2	3-4	2	10	Ediswan D.	Double	Resist.	Willard	LBA 5-6	Adj. socket	
Dodge	12-16	15	....	....	12-16	2	12-16	2	....	Ediswan S.	Single	Resist.	Willard	LBA-3-12	Adj. screw	
Dorris	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S.	Single	Resist.	Willard	SJR-4	....	*Dash lamp Ediswan D.
Dort	6-8	15	....	....	6-8	4	6-8	2	10	Ediswan S*	Single	Resist.	Willard	SP-4	Adj. bulb	*Dash lamp Ediswan D.
Drexel	6-8	15	6-8	4H	6-8	2	6-8	2	10	Ediswan S.	Single	....	Willard	LBA 6-80	....
Elgin	6-8	21	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	....	Gardner	....	Adj. socket	
Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	....	Willard	SLB-610	Adj. socket	*Dash lamp Ediswan D.
Empire	6-8	15	6-8	4H	3-4	2	3-4	2*	20	Ediswan S.	Single	....	Prest-O-Lite	611R	Adj. bulb	*Tonneau lamp 6 vol. 2 cp.
Fiat	6-8	15	6-8	4H	6-8	2	6-8	4	....	Ediswan S.	....	....	Willard	SLB-612	....
Ford	6-8	15	....	....	....	....	....	....	....	....	....	....	....	....	....
Franklin	12-16	21	12-16	4H	6-8	2	6-8	2	10	Ediswan D.	....	....	Willard	SJR-26-A	Tooth and rack	
Gilde	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	....	Willard	SLB-68	Adj. screw	*Dash lamp Ediswan D.
Grant	6-8	15	6-8	4H	6-8	2	6-8	2	20	*	Single	Resist.	Willard	Sq. 6-80	Adj. socket	*Headlamps double, tail and dash single.
HAL	6-8	18	....	....	6-8	2	6-8	4	15	Ediswan S*	....	....	Gould	....	Adj. screw	*Dash Ediswan D.
Harroun	6-8	15	6-8	12H	6-8	2	6-8	2	5	Ediswan D	Double	Series	Willard	L.B.A.	Adj. screw	
Haynes	6-8	15	6-8	2H	6-8	2	6-8	2	....	Ediswan S*	Single	....	....	....	....
Howard	6-8	15	6-8	....	....	....	....	....	....	....	....	....	....	....	....	*Dash lamp Ediswan D.
Hudson	6-8	15	6-8	....	3-4	2	3-4	2	....	Ediswan S.	Single	Resist.	Exide	....	....
Hupmobile	6-8	15	6-8	4	6-8	4	6-8	4	15	Ediswan S.	Single	Resist.	Willard	LBA-66	....
Inter-State	6-8	15	....	....	6-8	2	6-8	2	10	Ediswan S.	Single	Resist.	Willard	LBA5-6	Adj. bulb	
Jackson	6-8	15	....	....	6-8	2	6-8	2	20	Ediswan D.	Single	....	Willard	SC304	Adj. socket	
Jeffery	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	....	....	Willard	SP-4	....
Jordan	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	....	Willard	LBA 6-6	Adj. bulb	

NOTE—Where headlamps have small bulbs for side lamps the candlepower is followed by the letter H. **ABBREVIATIONS**—Type of Socket: Ediswan single contact, Ediswan S; Ediswan double contact, Ediswan D; Circuit breaker, C.B.; Dimmer. Resistance, Resist; Series connection, Series.

Used on the Principal Cars for 1917

Car	HEAD LAMPS		SIDE LAMPS		TAIL LAMP		DASH LAMP		Fuses Amp.	Socket	Wiring System	Type of Dimmer	Make of Battery	Style of Battery	Method of Focusing	Remarks
	Volt	Cp.	Volt	Cp.	Volt	Cp.	Volt	Cp.								
King	6-8	18	6-8	4H	6-8	2	6-8	2	10	Ediswan S.	Single	Series	Willard	SC-304	Adj. bulb.	*Dash lamp, single *Fuses 5 amp. in all but headlamps *On 176 model on 178 single and double *Dash lamp Ediswan D.
Kissel	6-8	18	....	....	6-8	2	6-8	2	20	Ediswan D*	Single	....	Willard	LBA 6-6	....
Kline	6-8	15	6-8	4H	6-8	4	6-8	4	15*	Ediswan S.	Single	....	Willard	SP 4	Adj. bulb.
Lewis	6-8	15	3-4	2	3-4	2	Ediswan D.	Single*	Resist.	Exide	*Dash lamp Ediswan D.
Lexington	6-8	21	6-8	8H	6-8	4	6-8	4	15	Ediswan S*	Single	....	Willard	LBA5-6A	Adj. mounting
Liberty	6-8	15	....	H	6-8	2	6-8	2	....	Ediswan S.	Single	....	Willard	SP-4	....
Locomobile	6-8	21	6-8	6	6-8	4	6-8	2	10	Ediswan S.	Single	Resist.	Willard	SSB612	Adj. screw	*Dash lamp Ediswan D.
McFarlan	6-8	24	6-8	12H	6-8	2	6-8	2	10	Ediswan S*	Single	Series	Willard	SJR-5	Adj. screw	
Madison	6-8	15	6-8	6H	6-8	4	6-8	4	....	Ediswan S.	Single	....	Willard	LBA6-6	....
Marion A.	6-8	18	6-8	4	6-8	2	6-8	2	30	Ediswan S.	Willard	SLB-68	Spring	*Dash lamp Ediswan D.
B	6-8	21	6-8	4	6-8	2	6-8	2	30	Ediswan S.	....	....	Willard	SLB-68	Spring
Marmion	12-16	24	12-16	8H	12-16	4	12-16	4	20	Ediswan S.	Single	....	Willard	SLB-125	Adj. bulb.
Maxwell	6-8	15	6-8	2	6-8	2	20	Ediswan S.	Resist.	Prest-O-Lite	Adj. screw	*Dash lamp Ediswan D.
Mercer	12-16	24	12-16	4	12-16	4	12-16	4	10	Ediswan S.	Single	Warner	Willard	SJR 28	Sliding socket	
Metz	6-8	15	6-8	4H	6-8	2	6-8	2	50	Ediswan D.	Single	Shad. rays	Willard	SJW-3	....
Mitchell	6-8	15	6-8	2	6-8	2	15-20	Ediswan D.	Single	Series	Willard	LBA-6-6	Adj. socket	*Dash lamp Ediswan D.
Moline-Knight	6-8	15	6-8	6H	6-8	2	6-8	4	20	Ediswan S.	Single	Deflect.	Willard	SJW-4	Adj. screw	
Monroe	6-8	15	6-8	2H	6-8	2	6-8	2	....	Ediswan S.	Single	....	U.S.L.	CD	Adj. bulb.
Moon	6-8	15	6-8	2	6-8	4	C.B.	Ediswan S*	Single	Willard	SP-4	*Dash lamp Ediswan D.
Murray	6-8	18	6-8	4H	6-8	2	6-8	2	15†	Ediswan D*	....	....	Willard	SSB610A	Adj. bulb.
National	6-8	18	6-8	4H	6-8	2	6-8	2	....	Ediswan S*	....	....	Willard	SLB 612	....
Oakland	6-8	12	6-8	2	6-8	2	C.B.	Ediswan S*	Single	Resist.	Exide	3xc13-1	Adj. screw	*Dash lamp Ediswan D.
Ogren	6-8	12	6-8	6	6-8	6	6-8	6	....	Ediswan S.	Single	Deflec.	Willard	....	Adj. screw
Oldsmobile	6-8	15	6-8	4H	6-8	2	6-8	2	....	Ediswan S*	Single	....	Exide	3-x-c-13-1	Adj. bulb.
Overland	6-8	15	6-8	4H	3-4	2	3-4	2	Ediswan D.	Willard	LBA 7-6 OHS	LB 68	*Headlamps Ediswan S
Owen O-36	28	21	28	4H	28	2	28	2	10	Ediswan D.	Double	....	Willard	SE-576-148	Adj. socket
M-25	14	21	14	4H	14	2	14	2	10	Ediswan D*	....	....	Exide	....	....
Paige-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	20	Ediswan S*	Single	Willard	LBA6-6	Adj. screw	*Dash lamp Ediswan D.
Paterson	6-8	12	6-8	8H	....	....	....	....	....	....	....	....	Willard	LBA 5-6	....
Packard	6-8	24	6-8	6H	6-8	2	6-8	2	10	Ediswan D.	Double	....	Willard	PSLB 612	Adj. screw
Pathfinder	6-8	15	6-8	4H	6-8	2	6-8	2	Ediswan S.	Single	Warner	Willard	SLB612A	*Dash lamp Ediswan D.
Peerless	6-8	15	6-8	4	6-8	2	6-8	2	10	Ediswan S.	Single	....	Willard	SC 306	Adj. screw
Phianna	6-8	24	6-8	4H	6-8	2	6-8	4	....	Ediswan D.	Double	....	Willard	SJR-4	Adj. bulb.
Pierce-Arrow	6-8	21	6-8	4	6-8	4	6-8	4	10	*Ediswan S.	Single	Sutterly	Willard	SJR-6	*Dash lamp Ediswan D.
Pilot	6-8	15	....	....	6-8	2	6-8	2	....	Ediswan S.	Single	Resist.	Willard	3xc-19-1	Adj. socket
Porter	12-16	25	12-16	6	12-16	3	12-16	3	6-3	Ediswan S.	Single	....	Willard	LBA5-6	Adj. bulb.
Premier	6-8	21	6-8	4H	6-8	2	6-8	2	C.B.	Ediswan S*	Single	Willard	SLB 125	Adj. bulb.	*Dash lamp double.
Pullman	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S.	Single	....	Willard	LBA6-6	Adj. bulb.
Regal	6-8	21	....	....	6-8	4	6-8	2	....	Ediswan S.	Single	Resist.	U. S. L.	C-311	Adj. bulb.
Reo	6-8	15	3-4	2	3-4	2	5	Ediswan D.	Double	Series	Willard	LBA 66	Adj. socket	*Dash lamp Ediswan D.
Ross	6-8	15	....	....	6-8	4	....	....	....	Ediswan D.	....	....	....	....	....
Saginaw	6-8	15	....	....	3-4	2	3-4	2	....	Ediswan S.	Single	Series	Willard	LBA 7-6	....
Saxon	6-8	12	6-8	2	6-8	2	15	Ediswan S*	Single	Resist.	Exide	*Dash lamp Ediswan D.
Scripps-Booth	6-8	15	6-8	4H	6-8	2	6-8	2	....	Ediswan S.	Single	Series	Willard	SC 304	....
Simplex	12-16	40	12-16	4H	6-8	2	6-8	2	10	Ediswan S*	Single	....	Prest-O-Lite	611 RI	....
Singer	6-8	15	6-8	2	6-8	2	5	Ediswan S.	Single	Gould	Adj. bulb.	*Tail lamp double
Sphinx	6-8	12	6-8	4H	6-8	4	....	....	25	Ediswan S*	Single	....	Willard	SJR4	....
Standard	6-8	18	6-8	4	6-8	2	6-8	2	15	Ediswan S.	Single	Series	Willard	SLB 6-10	....
Stanley	6-8	18	6-8	4H	6-8	2	6-8	2	Ediswan D.	Double	Warner	Willard	ELB 68	*Dash lamp double.
Stearns SK8	12-16	24	12-16	4H	12-16	2	12-16	2	20	Ediswan S.	Single	....	Willard	LBA 5-12	Adj. screw
SKL-4	12-16	18	12-16	4H	12-16	2	12-16	2	20	Ediswan S.	Single	....	Willard	LBA 4-12	Adj. screw
Stephens	6-8	21	6-8	4	3-4	2	3-4	2	20	Ediswan S*	Single	Willard	SJW-3	Adj. bulb.	*Dash lamp double.
Sterling	12-16	15	12-16	4	12-16	2	12-16	2	....	Ediswan S.	Single	....	Willard	SJW-26	....
Studebaker	6-8	12	....	....	6-8	2	6-8	2	10	Ediswan S.	Single	Resist.	Willard	SJ-4	Adj. bulb.
Stutz	6-8	21	6-8	4H	6-8	2	6-8	2	Ediswan D.	Double	Willard	LBA612	*Dash lamp double.
Sun	6-8	18	....	....	6-8	2	6-8	2	20	Ediswan S.	Single	Resist.	Willard	SLB68	Adj. bulb.
Velle	6-8	15	6-8	4	3-4	2	3-4	2	5	Ediswan S*	Single	....	Willard	LBA 56	External adj.
Westcott	6-8	15	6-8	4H	3-4	2	3-4	2	Ediswan S*	Single	Willard	LBA 6-6	Friction stem	*Dash lamp double.
White	12-16	25	12-16	4H	12-16	4	12-16	4	C.B.	Ediswan D.	Double	Warner	Exide	....	....
Willys-Knight	6-8	16	....	....	3-4	2	3-4	2	....	Ediswan D*	Single	Series	Willard	S x 28	....
Winton	6-8	21	6-8	8	6-8	4	6-8	2	15	Ediswan S.	Single	Willard	LBA 7-6	Adj. screw	*Tail lamp Ediswan S.
Woods	60	25	30	8	30	10	30	10	10	Ediswan D.	Double	....	Woods	SSB 610	Adj. screw

NOTE—Where headlamps have small bulbs for side lamps the candlepower is followed by the letter H. ABBREVIATIONS—Type of Socket: Ediswan single contact, Ediswan S; Ediswan double contact, Ediswan D; Circuit breaker, C.B.; Dimmer. Resistance, Resist; Series connection, Series.

Editorial Observation

Leave the Roots Alone!

IN spite of the fact that Postmaster General Burleson has specifically recommended that there be no increase in second-class mail rates; in spite of the fact that such an increase, proposed in the Randall rider in January of this year already has been thoroughly discussed and thrown into the discard, the Ways and Means Committee of the U. S. Senate now proposes to strike a most destructive blow at the business papers of the country *by this very means*.

If this expedient of the committee goes through it will increase second-class mail rates over the present 1-cent-per-pound rate by nearly 400 per cent.

The plan is the same as that proposed by the Randall rider. It would split the country up into a series of zones like the zones for parcel-post mail.

The plan would not affect the small business paper with a restricted circulation, *but it would penalize the foresight, the aggressiveness and the business ability of the nationally known business papers, whose benefits extend to the four quarters of the country.*

In short, the measure places undue exactions on readers not located near publication centers.

To publishers the situation is grave.

To the reader it is equally grave. It will mean that subscription costs will be tremendously increased in many cases. For example, the present subscription to **MOTOR WORLD** is \$2, regardless of where the reader may live.

Under the new plan the mailing expense will be \$4.50 if the reader lived on the Pacific Coast, \$4 if he lived in Denver, \$3.50 if he lived in Kansas City or Omaha, \$3 in Chicago, St. Louis and Milwaukee, \$2.50 in Detroit, Cleveland, Toledo, Cincinnati.

It will mean also that the work the business papers are doing in disseminating news of the progress of industries, information on better business methods, will have to be curtailed.

If any measure were proposed to close public schools

during one day a week so as to save money for the government the storm of protest it would raise would resound around the world.

Yet the Ways and Means Committee proposes to close the school of the business man by reducing the amount of education the business papers can transmit and by increasing the cost of such education by nearly 400 per cent.

The business papers are willing and anxious to do their share toward carrying the war-time burden. They have already offered their editorial and advertising pages free to the government.

But this proposal to increase second-class mail rates is a blow directly at the root of trade. No harm ever came to a fruit tree from the gathering of the fruit, or even from judicious pruning of the limbs.

If one root of the tree is harmed, many branches shrivel and die; the ability of the tree to bear fruit is seriously impaired.

The Ways and Means Committee is stabbing at the roots of the business industry. It has not considered the fruit either as of benefit to the government or to readers of business papers.

The measure has not gone through, as yet. Every industry has marshaled its forces to defeat it—to defeat it not merely because it is a tax, but because it is an unjust tax which will work untold harm to every industry, for these industries are largely dependent upon their business papers for the news and the inspiration that permit them to live and grow and expand.

There is yet time to defeat the measure. Every reader of a business paper can do his share.

Telegraph your Senator to vote against it. Wire him that your business demands the service of the business papers. *Wire him to urge the Ways and Means Committee to take what it will of the fruits, but to leave the roots alone.*

Boston After "Slacker Buyers"

BOSTON, May 10—The Boston Automobile Dealers' Association will hold a meeting next week to talk over a plan to instill in the minds of people some facts about the stability of the country despite the fact that a war is on. It has been found that sales have slowed up the past 2 weeks, and while cancelled contracts are few, buyers have held off. The prospects who were secured at the show and had planned for cars in May when the weather became good are not enthusiastic now.

St. Louis Completes Committees

ST. LOUIS, May 10—President Joseph A. Schlecht of the St. Louis Automobile Manufacturers' and Dealers' Association has completed the list of his committees. The names were added after a conference with the chairmen and are:

Show and Exhibition Committee—H. W. Spalding, chairman; J. D. Cathey, W. S. Roberts, H. L. Sutton, Milton B. Strauss.

Used Car Committee—I. G. McNiece, chairman; Phil H. Brockman, George Weber, James E. Newell, Webster M. Colburn, R. W. Leach.

Legislative Committee—W. L. Johnson, chairman; F. E. Stevens, W. C. Anderson, H. G. Hurd, L. G. Schubert.

Membership Committee—F. R. Tate, chairman; Wesley M. Stanger, H. G. McCarthy, H. G. Sperreng, Hugh Cartwright.

Entertainment Committee—J. D. Perry Lewis, chairman; J. B. Corby, Roy M. Frye, J. W. Leigh, J. A. Lindsey.

Detail and Advisory Committee—F. W. A. Vesper, chairman; F. W. Wolfe, Edward Weber, Henry Rottersman, E. C. Hatfield.

Races and Contests Committee—H. L. Schnure, chairman; J. D. Barth, W. C. Cobb, J. T. Salisbury, George Armstrong.

Wisconsin "Enlisting" Its Cars

MILWAUKEE, WIS., May 10—A Motor Transport Reserve as a part of the Wisconsin National Guard system is being established under the auspices of the Wisconsin State Automobile Association, which intends to enlist from 15,000 to 25,000 car owners in the state to pledge their cars and the services of themselves or their drivers to give the Wisconsin infantry a mobility that is possible only with motor vehicles. The intention is to form squadrons of the same make and model of certain cars, for the sake of uniformity in repairs. Each company is to have a repair car attached to it. Harry A. Apple, 505 Montgomery Building, Milwaukee, secretary of the W. S. A. A., is handling the secretarial work.

Closes Disbrow Eastern Contract

CLEVELAND, May 10—The Disbrow Motors Corp. has closed a contract with E. L. Smith for 250 Disbrow "Special" cars, which is one-tenth of the output for 1917. Smith will handle the entire Atlantic coast as far south as Richmond, Va., with branches in New York, Philadelphia and Boston. Mr. Smith formerly handled the Sunbeam car.

War Insurance Active

NEW YORK, May 10—There is much activity in bombardment, explosion and full war risk cover in the insurance district. One company has sold \$11,000,000 full war risk on the Studebaker plants, viz., \$7,000,000 at South Bend, Ind., and \$4,000,000 at Detroit.

Letters From MOTOR WORLD Readers

Intensely Practical

Editor Motor World: I am very much interested in your used car department which was recently started in the MOTOR WORLD. I think it is a fine thing and I have already had occasion to use it twice in an argument with a customer, who tried to buy a secondhand car cheaper from us than we were asking. He claimed it was too high and I was able to show him where several cars have sold during the previous week in several territories for more money than I was asking for this car, notwithstanding the fact that I had stated that no car had been sold in any better condition than the one I was offering for sale.

I have always been a subscriber to the Chicago Automobile Trade Association and have found it invaluable and shall always continue to use it. But the MOTOR WORLD idea of bringing it up to date every week adds an additional help to the dealer. I have instructed my manager of the used car department to contribute our sales of used cars to your department so they can be compiled with others.

If all other dealers throughout the country would only realize the value of assisting in keeping this department up to date and report their sales, we would soon have a department which no garage can be without.—John Van Benschoten, Poughkeepsie, N. Y.

Give Yourself "The Once Over"

To All Dealers:

In looking over a copy of the Motor World dated April 25, we find considerable food for thought, and it appears to us that every Oldsmobile dealer should hold a convention with himself and his organization and analyze the many vital points brought out on pages 8 to 24, inclusive, of this copy of the Motor World.

Read pages 10 and 11 carefully, then sit down and read them over again very slowly. Read particularly the four divisions headed: "Again, do it this way," "How to sell a car," "The right answer," and "On the other hand."

This bulletin is not a reflection on any particular dealer, but every dealer and his salesmen are just like a piece of ground. It may be the richest ground in the country, but is absolutely worthless, as far as producing is concerned, unless it is ploughed up and harrowed. We need ploughing ourselves occasionally, and these pages do it. There isn't a dealer in the country but what could

afford to close up his place of business for half a day, if necessary, and read these pages carefully. After that go out and apply the ideas submitted.—The Michigan Oldsmobile Co., C. C. Chaffin, General Manager, Cleveland.

Montreal Appoints Committees

MONTREAL, May 11—At a special meeting of the Montreal Automobile Trade Association held recently a great number of details were discussed and so large has the work of the association grown that it was decided to appoint a series of committees to lighten the work of the board of directors. A tire and accessory committee was appointed as follows: J. Earnest Millen, chairman, John Millen & Son; J. O. Linteau, Legare Automobile Co.; A. C. Lariviere, Lariviere, Inc.; Mr. Renaud, Renaud Motor Supply, East End Garage; J. Tuckwell, Tuckwell Bros.; H. W. Petrie Co.; Walker Hardware Co., and Canadian Fairbanks Morse Co.; and a committee to study the used car problem was appointed as follows: J. R. Marlow, Willys-Overland Co., chairman; J. E. Doane, Cadillac Motors, Ltd.; J. O. Linteau, Legare Automobile Co.; J. E. Catudal, McLaughlin Motors; C. S. Hobson, Ford Motor Co.; R. F. Girdwood, Girdwood Lamb Motors; C. Gareau, Grant Distributing Co.; Mr. Pennal, Comet Motor Co., and Victor Levesque. A welfare committee will be appointed by the board of directors at the next meeting.

Gibson Likes Motor World

INDIANAPOLIS, May 10—What the Gibson Co., Indiana and eastern Illinois distributors of the Overland, think of the new Used Car Department of the Motor World is expressed in a special bulletin on the subject, issued to all dealers in the territory under the signature of Joseph M. Bloch, secretary and manager of the company.

The bulletin after calling attention to the work undertaken by the Motor World says: "The information contained in the special used car articles and the Used Car Price Record is invaluable and we heartily commend the information contained therein to your earnest attention.

"If you are not already a subscriber to Motor World, I would suggest that you send in your subscription. The magazine is published weekly and the price of \$2 per year is small compared with the highly valuable information that it provides on all subjects relating to the automobile trade."

The Gibson Company has under its jurisdiction 150 Overland dealers. Last year 6000 cars were sold and this year's contract is for approximately 7000 cars.

50,500 Cars in Georgia

SAVANNAH, May 11—To date 50,500 1917 motor car tags have been sold by the secretary of state. License fund on hand is about \$175,000.

The RETAIL NEWS

COAST

Wakefield Bros. Garage, Elma, Wash., has purchased a site and will erect a concrete fireproof garage. Structure will be 60 x 127.

Fancher-Larson Company, Spokane, Wash., has leased "Pete's Garage" at Pacific Avenue and Walnut Street, where the office department of the company will be located. This gives the company two garages in Spokane.

Snyder Motor Car Co., Spokane, will occupy a \$10,000 garage to be erected at Second and Monroe Streets. It will be completed June 1. The showroom will be in the front, with the service department and repairshop in the rear and the offices on the balcony.

A. A. Peterson Co., Los Angeles, recently moved into very much larger quarters at 1224-28 South Main Street. The company is operating what it terms an "Automobile Department Store," there being five complete departments devoted to various lines of work. An ignition department will shortly be added.

Northwest Buick Co.'s garage in Spokane is undergoing extensive alterations. Parts department is being enlarged and new office quarters installed.

Overland Pacific Co., Spokane, has leased the garage formerly occupied by the Western Auto & Equipment Co. at 118 Walnut Street, and will move its service station from the garage on First and Maple to the new place.

Burns Garage, Crane, Ore., is building a large warehouse for storing case goods of oils, lubricants, etc.

Rose-Nepple Auto Co., Olympia, Wash., dealer in Dodge Bros. cars, held an opening of its recently completed showrooms, machine department and service station.

Valley Auto Co., Auburn, Wash., has enlarged its repair shop to twice its original size. An accessory department has been added.

Laher Auto Spring Co., 1409 Broadway, Seattle, has recently installed new equipment in its plant.

Tenth Avenue Repair Shop has been located in Auto Row, Seattle, by G. L. Paton. Ford work will be one of the specialties of the shop.

Pine Street Simonizing Station has been located at 309-11 East Pine Street, Seattle, by W. C. Conover, L. P. Conover, R. P. Saller and R. W. Power.

H. H. Burt Powers, former superintendent of the Howard Automobile Co., and Frank Wenz, well known racing driver, have opened a repair and rebuilding shop at 1634 Pine Street, San Francisco, under the firm name of Powers-Wenz Co.

Olympic Garage has been opened at 665 Sutter Street, San Francisco.

J. W. Hoppe has been appointed Willard storage battery agent for Napa County, and will operate a service station at 83 Main Street, Napa.

B. & D. Co., Inc., with B. C. Brisbow as manager, is operating Stromberg carbureter, Delco and Atwater Kent service stations at 1655 Van Ness Avenue, San Francisco.

H. O. Little has been appointed manager of the Marshall Garage, 1419 Pacific Street, San Francisco.

Browntruck Attachment Co. has moved to 1222 Mission Street, San Francisco, and increased its capacity to 5 trucks a day. Delap Motor Co. has been named selling agent for San Francisco.

Western Ford Exchange, at 425-429 Valencia Street, San Francisco, has added a used Ford department.

Bert F. Gibbs, formerly connected with the Howard Automobile Co., has established a Buick repairshop at 1156 Geary Street, San Francisco.

E. L. Hughes, Modesto, Cal., has purchased the garage formerly operated by the George H. Sesson Co., and will continue the business under the name of Modesto Motor Company, E. L. Hughes, manager.

I. L. Hirsch, Tacoma, Wash., has moved his radiator and fender manufacturing plant to new quarters at 733-735 St. Helens Avenue.

Standard Motor Co., Tacoma, Wash., has moved into the building formerly occupied by the Jeffrey agency at 1306-1308 Tacoma Avenue. The place has been entirely remodeled, the front has been modernized and walls decorated. The company has the agency for Republic trucks and the Velle line.

Totem Auto Service Station, 1241 I Street, Fresno, Cal., is the latest addition to the automobile supply stores in Fresno.

Western Auto Supply Co., San Diego, Cal., has added the corner room at Fifth and Ash Streets to the former store.

Heath Garage, Long Beach, Cal., has opened at 135 East Fourth Street. The proprietors of the garage are C. C. Heath and R. St. James.

Kissel Kar Co. has opened a branch store at 225 Fresno Street, Fresno, Cal. A two-story building, 100 ft. sq., will be erected in Fresno at the cost of \$20,000.

United Auto Supply Co., Oakland, Cal., has moved into its new home at Nineteenth and Broadway.

Consolidated Auto Supply Co., San Francisco, has opened at 1121-33 Van Ness Avenue. This is practically the only retail accessory house on the Pacific Coast. All goods handled by this company are sold at retail only.

Posner Motor Sales Co., Fresno, Cal., has moved into a new home on Van Ness Boulevard.

E. Iverson Co., Fresno, Cal., tire and accessory dealer, has moved into the Kopper Kettle Building, at Fresno and Van Ness Boulevard, which has been remodeled.

Saxon Sales & Service Co., of Portland, Ore., has acquired selling privileges on the Acme truck. The territory grant was made by the Acme Motor Truck Sales Company established recently in Seattle, Wash.

W. B. Doan, for nearly two years Oregon distributor of the Paige and Saxon lines, has withdrawn entirely from the retail business and will hereafter confine his efforts to wholesaling Saxon cars in Oregon and Washington and Wilson trucks for the entire Pacific Coast.

Cook & Gill, pioneers in the automobile repairing business in Portland, Ore., have taken the agency for the Paige car and have opened a retail store at Broadway and Everett Street, Portland.

Covey Motor Car Co., Portland, Ore., has acquired a distributing contract on the Kelly-Springfield tires.

EAST

Herbert S. Tubbs, Boston, Mass., of the Spangler-Tubbs Co., Metz agents, has sold out his interest to Arthur C. Traverse.

Consolidated Rubber Co., Cambridge, Mass., has taken on the Star tires.

Harvard Square Garage, Cambridge, Mass., has been opened by George R. Fisher, Charles L. Dyer and Clarence E. Rogers. Mr. Dyer is manager. The garage has capacity for 100 cars.

Arthur C. Varnum, Lowell, Mass., Mitchell agent, has moved into new salesrooms.

Donovan Harness Co., Lowell, Mass., has taken on the Standard tire.

Connell & McKone Co., Manchester, N. H., Overland agent, has moved into a new building.

Bibeault & Stevens, Lowell, Mass., accessory dealers, moved into new quarters.

Springfield-Emerson Four Motor Sales Co., Springfield, Mass., has been formed to handle that car.

Packard Motor Car Co., Worcester, Mass., has moved into a new sales and service station, the largest in the city.

The Utterback-Gleason Co., Bangor, Me., has opened salesrooms at 27 Franklin Street, for the King and Dort.

SOUTHWEST

Haven Garage, Haven, Kan., is planning a display room for accessories.

Independent Garage, Wamego, Kan. is now owned by H. L. Cline.

Leo Meng, Fowler, Kan., is building a garage.

O. R. Ward, Arnett, Okla., has opened a supply house.

Starbuck & Son, Afton, Okla., are erecting a one-story garage.

John C. Barnard, Omaha, Neb., will build a garage at Harney and Turber Boulevard.

Upperman & Leiser, Grand Island, Neb., will open a garage as soon as the building under construction is completed.

Tucson Overland Co., Tucson, Ariz., will soon occupy its new building.

Borderland Garage, El Paso, Tex., was recently destroyed by fire. Loss, \$70,000; insurance, \$2,500.

Auto-Inn Garage, Humansville, Mo., will soon occupy a new garage, 50x50.

Edson Motor Co., Bethany, Mo., is building an addition to its garage.

Bittel Leftwich Co., St. Louis, Mo., has opened a retail and wholesale accessory department.

Houck Brothers, West Plains, Mo., have purchased the Maxwell Garage.

Will Eason, Stockton, Mo., has erected a garage and repairshop.

Witthaus & Son, Hoberg, Mo., have opened a garage and repairshop.

Lin Howell and Joseph Hall, Kahoka, Mo., have opened a garage.

E. E. Trader, Lamonte, Mo., has purchased a garage.

M. Humes, Memphis, Mo., Dodge agent, has opened a garage.

A. M. Ingram & Son, Magnolia, Mo., have opened a garage.

Frank Beets, Independence, Kan., has opened a salesroom and garage.

C. A. Bradbury, Mound Valley, Kan., will soon move into a new concrete garage.

W. C. Child, Belvue, Kan., will open a supply shop.

H. V. Harris, Hanover, Kan., Maxwell agent, will open a garage.

Clarence Carter, White Cloud, Kan., has purchased the Ford Garage.

Miller Auto Co., Olsburg, Kan., has purchased the Hartman Garage.

Larson & Son, Concordia, Kan., are erecting a garage.

C. E. Ater, Eureka, Kan., has let the contract for a garage building.

Robert Dyer, Troy, Kan., has purchased the Marcum Garage.

B. P. Fleming, Norton, Kan., is erecting a modern garage.

Shochey Bros., Spickard, Mo., are building a garage.

Patterson Motor Co., Ardmore, Okla., expects to be in its new building June 1.

W. C. Bower, Osborn, Mo., has opened a garage and repairshop.

O. G. Teegarden, Bolivar, Mo., is planning a new garage and sales room.

Hill Bros. & Jett, Ticking, Mo., have moved into their new garage.

Bishop & Tailmadge, Wellsville, Mo., will soon move into their new garage.

Harold Harris, Odessa, Mo., has opened a garage.

Beaumont Motor Sales Co., Eldorado, Kan., is successor to Beaumont & Parton, dealers.

Mogie Motor Co., Winfield, Kan., has moved into new quarters.

Ernest Watts, Harlan, Kan., has opened a garage.

Hershey & Chatelle, Smith Center, Kan., have bought the M. L. Cannon Garage.

Wolfley Bros., Hiawatha, Kan., are making improvements in their garage. These include a storeroom for accessories.

N. C. Foster, Pratt, Kan., will conduct the repairshop for the Shetterly Garage.

Central Garage, Frontenac, Kan., has opened for business.

Earl and Ray Murphy, Seneca, Kan., will open a garage on July 1 in a new building now being erected.

Ed. Fletchall & Son, Sabetha, Kan., will open a garage as soon as the building is completed.

J. N. Arthur, Atchison, Kan., opened a salesroom May 15.

O. D. Gauthier, Hill City, Kan., has commenced work on his new garage.

Leonard Gurtler, Onaga, Kan., has purchased the repair and accessory department of the Coenellus Garage.

William A. Brady, Temple, Tex., is the head of the Emerson Motor Sales Co., which has been organized for the distribution of Emerson cars in eighty-four counties in Texas and Mexico.

Guy Wilson, St. Louis, Mo., is now in the employ of the Brandle Motor Co.

Overland Sales Co., Eldorado, Kan., is open for business in its new garage.

Ford Agency, Coffeyville, Kan., is now in the new headquarters in the Alamo Building.

Day & McHugh, Bucklin, Kan., are building an addition to their garage to be used as a workshop.

Borderland Trail Garage, Liberal, Kan., has completed an addition.

Mann & Son, Liberal, Kan., have completed their garage on North Kansas Avenue.

Workman & Ross, Coffeyville, Kan., have taken over the business of the Overland Sales & Service Station and will continue the business under the old name.

Cameron's Garage, Burr Oak, Kan., is open.

The Grossenbacher Garage, Bern, Kan., will build an addition.

Edison Auto Co., Liberal, Kan., is building an addition to the garage.

Bert Roberts and Charles Rutledge, Inman, Kan., are planning a building, 25x80, to be used as a garage.

Bucklin Motor Co., Bucklin, Kan., will soon occupy a new \$10,000 structure.

Simpson Motor Co., Salina, Kan., will occupy a new building being erected on North Seventh Street.

Charles Thompson, Elgin, Kan., will open a garage in a building now being erected.

Edmon Bostor, Greensburg, Kan., has opened the "Cannon Ball Garage."

Williams Motor Car Co., Dodge City, Kan., has leased the building formerly occupied by M. B. Bell.

M. B. Bell, Dodge City, Kan., has moved his stock of motor cars to a new building on Chestnut Street.

Bordner & Williams, Eldorado, Kan., have taken the agency for the Paige in Butler County.

R. A. & R. L. Kent, Concordia, Kan., have moved into their new building.

Henry Schuette, Lebanon, Kan., will soon have his new garage completed.

Putnam & Sprinkle, Knobnoster, Mo., will open a garage in the Andes Building.

T. E. Hawkins, Shelby, Mo., has made arrangements to build a garage.

Glipin & Thompson, Dunnegan, Mo., have opened a garage.

Arthur Souders, Gerald, Mo., will soon open a new garage.

The Ozark Garage, Rocky Comfort, Mo., will soon be ready for occupancy.

Slater Motor Car Co., Slater, Mo., is making an addition to its garage.

Walden & McAtee, Jackson, Mo., have opened a new garage.

Dennis Miller Garage Co., Rich Hill, Mo., is building an addition.

Jewell Benskin and Fred Shaff, Stockton, Mo., are the new owners of the garage near Filley.

E. R. Carlton, Lamar, Mo., has bought the Gelwicks Garage and is Overland agent.

J. C. Cage, Pomona, Mo., has opened a garage.

SOUTH

J. H. Collie & Son, Springhope, N. C., have been appointed as service station for the Philadelphia Diamond grid battery, manufactured by the Philadelphia Storage Battery Company.

MIDDLE WEST

Stephens-Adams Co., 495 Broadway, Milwaukee, McFarlan Six dealer, has been dissolved, A. D. Stephens retiring. The business will be continued by H. L. Adams.

Rogers & Lohrenz Motor Sales Co., Crandon, Wis., has been organized by F. J. Rogers and Ben Lohrenz to act as Buick and Overland dealers. A general garage and repairshop has been opened in the Mueller building in Crandon.

August Brandt, Black Creek, Wis., Ford dealer, has organized the Brandt Auto & Implement Co., Seymour, Wis., and has opened a garage and service station in that city. H. F. Hall and Louis Lorenz, of Seymour, are members of the company.

Chippewa Valley Auto Co., Eau Claire and Chippewa Falls, Wis., Studebaker distributor, announces the appointment of E. J. Sailstadt as manager of the wholesale department. The force of 17 dealers will be enlarged.

Public Service Garage, 680 College Avenue, Appleton, Wis., has been purchased from I. D. Segall by Charles F. Herman.

West Bend Motor Co., West Bend, Wis., has completed a large addition to its garage and is installing machine tool equipment.

Turnbull & Smith, Racine, Wis., have been appointed Briscoe and Paterson dealers for Racine County, and have opened a garage and service station in the Driver building on East State Street, near Second Street.

Joseph Guschl, 848 Forty-fifth Street, Milwaukee, will build a one-story fireproof garage, 60 x 120 ft., at North Avenue and Forty-fifth Street.

Gelhaus & Kriplin, Medford, Wis., have opened a public garage and repairshop.

Standard Oil Co., Germania Building, Milwaukee, has awarded contracts for the erection of a private garage and repairshop at Walker and Barclay Streets, Milwaukee. The building will be 90 x 140, two stories and basement, and cost about \$25,000 with equipment. W. W. Nichols is manager.

J. J. Dougherty Co., 803 Grand Avenue, Milwaukee, Ford dealer, will erect a garage and service station costing \$25,000 on Milwaukee Street, near Juneau Avenue. It will be of fireproof construction, 60 x 127, two stories and basement.

B. Degentesch, 889 Fifth Avenue, Milwaukee, Ford dealer, is building a fireproof garage and service station on Lincoln, west of Eighth Avenue. It will be 87 x 62, and will cost \$10,000.

Gilman Estate, Milwaukee, will build a one-story fireproof garage and repairshop at Seventh and Wells Streets.

W. H. Phelps, Carl Schira and J. A. Newcomer of Carey, Ohio, have formed a company to take over the garage business of W. H. Phelps. A new building will be built at once.

J. G. Semple, Findlay, Ohio, has opened the Central Garage at Fostoria and will handle trucks ranging in price from \$695 to \$15,000.

Jesse T. Graves and Henry J. Ziegler, Decatur, Ill., have opened a garage and accessory store at 150 North Broadway. A general repair and storage business will be conducted.

Chester F. Russell, Decatur, Ill., formerly connected with the sales department of the Velle Motor Car Co., Moline, Ill., has been appointed distributor for Velle cars in Macon and adjacent counties.

The Excel Garage Co., Chicago, has been incorporated with a capital of \$5,000. Incorporators are J. O. Schack, E. B. Lucius and J. S. Matthews.

Harry Miller, Middletown, Ill., has purchased the interest of Lee Newton in the Automobile Sales Garage, and is now in control. He plans a number of improvements.

Howard Gleason and George B. Harr, Rockford, Ill., have opened a garage sales agency and service station at 413 West State Street. They will be distributors for the Maxwell and Hupmobile. W. F. Barnes, formerly distributor for the Hupmobile, has given up the agency and will engage in other business.

The Ford Sales and Service Agency has removed to 501 Court Street, Pekin, Ill., and will be in charge of J. T. Conaghan. The new plant was formerly a livery barn, but has been completely remodeled.

H. J. Mayer, New Holland, Ill., has purchased the Logan County Garage from G. A. Trenkle, who retires. Mayer was formerly in the motor car business in Lincoln, Ill.

George W. Franklin Co., Detroit, has opened a branch sales and service station.

Downtown Garage Annex, Detroit, was opened May 1.

Walter Lang, Grand Traverse, Mich., will build a garage.

Caro Motor Sales Co., Caro, Mich., will erect a big building.

O. W. Swanson, Marquette, Mich., has opened a new garage with the agency for Oakland.

Thompson & Phillips, Charlotte, Mich., will open a new garage and repairshop.

E. Brown & Sons, Sandusky, Mich., will soon erect a new garage and showroom.

Harvey Blanchard, Dexter, Mich., has leased a garage and has secured the agency for Ford.

Garlinghouse Garage, Tecumseh, Mich., will open a new garage and will carry a complete line of accessories.

Cloverland Garage, Ontonagon, Mich., has opened.

Baker Garage & Supply Co., Saginaw, Mich., will move to new and larger quarters.

S. G. Simpson, Parsons, Kan., has opened a garage and repairshop.

Mike Poell, Hanover, Kan., is erecting a garage.

Leavel Garage, Leavenworth, Kan., is erecting a building.

John Ackard, Colby, Kan., has leased the Ball Garage and will have a repairshop added.

The Allen Motor Co., of Peoria, is remodeling the building formerly occupied by the Crown Garage at 905 Main Street. A spacious salesroom is being arranged. A complete line of tires and accessories will also be handled.

Modern Auto & Garage Co., Belleville, Ill., is erecting a \$50,000 reinforced concrete garage and service station, two stories, 150 x 80. The front will be an accessory salesroom.

DuBols-Haeyers & Co., Green Bay, Wis., have been appointed a service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Company.

Central Motor Car Co., Appleton, Wis., has been appointed a service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Company.

NORTHWEST

Ralph Sauers, Sheldon, Ia., has leased the repair department of the Tripp Auto Company.

Estes & Co., Leon, Ia., has bought the ground for a large two-story addition to its garage and will install new machinery.

G. G. Ackerman & Son, Toronto, Ia., have bought the Willert & Cavey Garage.

The Modern Motor Company, Brooklyn, Ia., announces the withdrawal of D. A. Edwards as one of its members.

L. E. Harrison, Nashua, Ia., has let the contract for a new garage, 66 x 110, to be located at Main and Depot Streets.

John Griffith, Greeley, Ia., has bought the interest of his partner, Mr. Armstrong, in their garage and Ford agency.

Alphonse Schnee, Remsen, Ia., has rented the old Singer Garage and will open a new garage business.

C. H. Ruschill, Lohrville, Ia., has taken the agency for Lexingtons and Pullmans and will open a garage.

Milledge & Pehrson, Red Oak, Ia., have sold their automobile business to Fred Buehler and L. H. Sheppard.

The Service Garage, Radcliffe, Ia., has completed excavation work for an addition to handle its growing business.

Fred J. Peglow, Monona, Ia., is building a garage.

Weiborg Wolf, Exira, Ia., is building a Ford garage.

S. H. Simmons, Nashua, Ia., has bought a half interest in the Nashua Motor Car Company, which is now owned by Jones & Simmons.

J. W. Lewis, Albia, Ia., has secured agencies for Chandlers and Grants and will open a garage.

Anton Lomen, Carpenter, Ia., has sold his garage to D. Huber.

E. J. Miles & Co., Newton, Ia., have bought ground for a new automobile warehouse to be built on trackage.

A. W. Giddings & Son, Sabula, Ia., have

sold their garage and auto business to the Keeper Land Company.

D. H. Adams, Humboldt, Ia., is constructing a building and will start an automobile, tractor and garage business.

Crary Motor & Implement Company, Boone, Ia., is building a two-story addition to house its growing business.

O. D. Eaton, Sanborn, Ia., has bought the Square Deal Garage.

Kiuter & Schuelke, Ireton, Ia., has let the contract for a new home for its garage.

The Pella Vulcanizing Company, Pella, Ia., has opened a store.

Lamis & Hoose, Eddyville, Ia., are erecting a garage.

The Repass Auto Company, Waterloo, Ia., has started construction on a home for its business.

Rude Auto Company, Perry, Ia., will start a Ford service plant in a building now being erected.

Clemmensen Brothers, Elkhorn, Ia., have sold their garage to J. E. Odell.

John Johnson, Rockwell, Ia., is clearing ground for a new garage.

John Shearl, Lorimor, Ia., is putting up a building to house his increasing garage business.

G. L. Houlton, Ireton, Ia., has bought a site for a garage and auto shop, which he will erect at once.

Crowe Auto Company, Boone, Ia., has been bought by the Swaney Auto Company, of Carroll, Ia., which will conduct the property as a branch. New repair machinery, to cost \$5,000, will be installed. The Swaney company now has branches at Jefferson, Fort Dodge, Rockwell City, Gowrie and Boone.

Tom O'Brien, Greenfield, Ia., has sold his interest in the Big Four Garage to Charley Girard.

Frank Vorhees, Lineville, Ia., is opening a garage in the Brooks Building.

Walter H. Baker, Kanawha, Ia., will open an auto repair and vulcanizing shop.

James H. Belvel, Lineville, Ia., has bought the Moore Brothers Garage.

Stockwell-Steinmetz Auto Co. is a new firm at 1116 Hennepin Avenue which has taken distribution of the Case car in Minnesota, the Dakotas, Montana and western Wisconsin. The Case branch opened two months ago and is now in new hands. C. N. Stockwell came from Mussellsell, Mont., and L. G. Steinmetz has been with the J. I. Case Threshing Machine Co., Minneapolis branch.

Fawkes Automobile Co., Reo distributor, has moved to its new building at 1629 Hennepin Avenue, three stories and basement, 50 x 150. This is the last of a series of buildings erected by Mr. Fawkes, and forming the largest motor center of the city. It has two wash racks and capacity for turn-over of 2000 cars a year.

B. B. Bennett, Drake, N. D., is building an addition to his garage.

George Allen, Savage, Minn., is building a garage.

J. E. Williams, Mitchell, S. D., will build an addition to his garage.

Franta Bros., Wabasso, Minn., will erect a fireproof garage, 50 x 130.

J. E. Kelly, Waseca, Minn., is building a garage, concrete and tile, 44 x 116.

Colvin Bros., Sherburn, Minn., are building a brick garage.

Zika & August, Le Sueur Center, Minn., are building an addition to their garage.

Miller Garage Co., South Heart, N. D., is building a garage.

Harris Gourd, Randall, Minn., is building an addition to his garage.

A. Shannon and J. H. Shea, Perham, Minn., are building a garage.

F. R. Nulph, Noonan, N. D., has bought the F. P. Truax garage.

Jesse Everhart, Halliday, N. D., has bought a half interest in the Ole Viken Garage.

Ed Roscoe, Sweet Grass, Mont., has bought the Sweet Grass Garage.

Jacob Fleck and Anton Wilhelm, Richardson, N. D., have formed a partnership as the Red Trail Garage.

N. C. Sorenson, Kandiyohi, Minn., has bought the Grinde & Cederstrom Garage.

Roy Samuelson, Milaca, Minn., has opened a garage.

More Bros., Fargo, N. D., have bought the implement business of A. G. Dankin at Pillsbury, N. D., and will operate an automobile business in connection with it. A. Y. More will have charge.

Schranz Bros. Auto Co., Moorhead, Minn., will enlarge its garage to 50 x 140, with basement storage space of 25 x 90 for supplies. More repair machinery will be put in.

Home Oil Co., Moorhead, Minn., has begun work on a warehouse, 34 x 46. Two tanks have been added and two 10-ton delivery trucks.

Hunt Elcar Co., Fargo, N. D., is opening a showroom at 510 Broadway to be run in connection with a service garage.

Jack Furber and W. F. LaMayeau, Detroit, Minn., have ordered plans for a brick fireproof garage to be called Motor Inn. It will cost \$10,000.

Louis Harris, Northfield, Minn., is building a garage.

Fred Johnson, Lancaster, Minn., is building an addition to his garage.

Smith & Spaag, Stockton, Minn., have opened a new garage, 40 x 60.

Mound Auto-Livery Garage, Mound, Minn., has been opened.

Mannix Motor Co., Sioux Falls, S. D., has moved to a new building on North Main Avenue.

George Everson, St. Charles, S. D., has built a garage.

McKenzie & Nelson, Warroad, Minn., are building a garage, 50 x 110, at Main and Lake Streets.

William Murry, Eveleth, Minn., will remodel his garage.

Milo Moore, Gregory, S. D., will build a garage.

Ed. Engman, Dolton, S. D., has opened a garage.

G. A. Richards, Huron, S. D., has bought the interests of George Clarke in the Rich-clar Garage.

King Wright, Michigan, N. D., is building a garage.

Arthur Blom, Shoreham, Minn., is building a garage and machine shop.

T. A. Fallgatter, Wilmont, Minn., is turning the fire truck building into a garage.

Oscar Hegre, Montrose, S. D., has taken over the Montrose Garage.

J. D. McNair, Wessington Springs, S. D., will enlarge his garage to 50x85.

J. D. Schenk and August Rittershaus, Menno, S. D., have opened a garage.

Rathman & Jones, Hartford, S. D., have opened a garage and service station.

MOUNTAIN

Alexander St. Claire, Reno, Nev., has been appointed a service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Company.

Don't Lose Your Head

THE National Association of Automobile Accessory Jobbers has voted not to hold the meeting scheduled for Hot Springs, Va., June 4-5-6, and in a letter to the trade on this subject Commissioner William M. Webster sounds a business note that is worthy of every man's attention. Cool heads are in demand. Webster, representing also the Chicago Brass Manufacturers' Association, has just tendered to the government 41 large plants in Chicago, with capital of \$20,000,000 and 30,000 employees.

Webster's Message

On the ballot which closed at five o'clock last night, by a vote of considerably more than two to one, the Hot Springs meeting is called off, and by a still greater majority, was the authority asked for conferred on the Board of Directors and the Membership Committee.

Maintain Your Equanimity

Be assured the calling off or postponing of this meeting has absolutely no other meaning or significance than that this is not the psychological time to hold a meeting, simply for the reasons stated in Bulletin No. 280 and which conclusions many organizations are arriving at.

Let Prudence and Wisdom Prevail

Do not get excited or lose your nerve, for if ever there was a time in our commercial careers when the business men of the country must stand together and act with calm judgment and cool deliberation, it is now when we are passing through the great war crisis.

The Real Acid Test of One's Business Ability

There is what is known as the "good times" business man—then there is the "poor times" business man. The "good times" business man is the one who can head a business when everything is running along swimmingly, with no trouble in sight, but when things take a turn and he strikes a reef of trouble, he gets rattled, loses his nerve, his vision is entirely through a sea of gloom, he sacrifices his goods, cuts his prices and slaughters his profits without reason, simply because he is incapable of reasoning or standing up to the rack and piloting the ship to success through a storm.

On the other hand, the "poor times" business man is blessed with reasoning powers and capable of looking at matters calmly and dispassionately, studying the future and discerning good business policies from wild-cat philosophies, and that sort of man in business, like the one in battle, is the man who wins.

Owing to the success of our association, I am going to believe that our membership is made up of the successful

"poor times" business men, endowed with grit; made of the stuff to stand in the breach in a time of trouble; who do not lose their heads, sacrifice their business or throw away their profits.

Reason vs. Rattle

This country is not going to the dogs. The opinion of those in a position to know best is that business will go along in this country this year about the same as it did last. War conditions here and there may cause a slight lull, but in the aggregate, volume and profits will run along about as in 1916.

There will also be the question of securing goods or service, owing to unsettled and disturbed conditions; as I have outlined before, therefore, the reasoning manufacturer in every line is demanding and getting prices for his goods based on market conditions, regardless of what they cost him. The wise jobber is doing the same thing. It is not what he paid for the goods but what they are worth to-day; hence I urge and advise all members to go right along on this basis.

Don't be in a hurry to get rid of your goods though bought at a bargain—that is your good fortune—or be governed by what you are told some one else is doing, for when you dispose of the goods you have on hand you have no assurance that you can replace them, for an order placed does not necessarily mean that the goods can be obtained. If the manufacturer cannot secure the raw material, he cannot furnish you the finished product. You are certain of a profit on what you have on hand, so keep it and don't let it slip through your fingers. The "poor times" business man won't—the "good times" business man should not.

Directors and Membership Committee Meetings

As soon as matters can be arranged, a meeting of these committees will be called and the membership at large fully advised of all that is done.

Illinois May Get Lien Law

CHICAGO, May 15—The Garage Owners Association of Illinois hopes to pass



WILLIAM M. WEBSTER

a lien law and will hold its annual convention at the Leland Hotel in Springfield, Tuesday and Wednesday, May 22 and 23, as it is expected the bill will come up for a final vote at that time. A great deal of work has been done by H. E. Halbert, Chicago, treasurer of the organization in getting the bill through the various committees. The law as it now stands is not unlike other lien laws, but provision has been made that the lien shall not come ahead of a chattel mortgage. When a previous attempt was made to pass a bill, the dealers in this state opposed it for fear it would interfere with their chattel mortgage rights in the sale of cars.

Boston Sends 3000 Telegrams

BOSTON, May 14—Secretary Chester I. Campbell of the Boston Automobile Dealers Association has sent at least 3000 telegrams of protest from Boston to members of Congress on the proposed 5 per cent tax. The dealers were requested to send several telegrams each, and as the factories had also asked the dealers to get busy the result was a big flood of messages. The association has decided not to send a delegation to Washington at this time, as it feels there will be no chance for a hearing, but later on if it is necessary this will be done.

New Building for Bound Brook

BOUND BROOK, N. J., May 14—The Bound Brook Oil-less Bearing Co. has awarded the contract for a new foundry to be erected at Plant No. 2, Lincoln, N. J., which is 2 miles east of the Bound Brook plant of the main lines of the New Jersey Central, Philadelphia Reading, Lehigh Valley, and Baltimore & Ohio Railroads, the addition being necessary to take care of its rapidly growing business. The new building will be steel and brick, 60 x 180, two stories.

A Department of Better Mechanics

No. 23

The Best Way to Clean Metal Parts

Six Vats in a Row Enable Quick and Efficient Work

This Method Is Recommended by the Delco Company

THE common hand method of cleaning and washing parts with gasoline or kerosene is expensive, tedious and dangerous. It is, at best, a makeshift method.

By using chemical washing solutions, contained in vats, parts may be quickly cleaned by inexperienced help at little expense. The method herein outlined applies to the larger repairshops, but may be modified to suit the requirements of the small shop.

In short, the parts are dipped either in a boiling caustic soda solution or a weak acid solution, that eats off the grease or dirt. Then they are rinsed and dried in sawdust.

The equipment complete is shown herewith. Vats 1, 2 and 3 are sheet metal lined, and the contained solutions are heated nearly to boiling by steam pipes placed in the bottom of the vats.

Jars 4, 5 and 6 are common earthenware jars, containing acid solutions, and are immersed in cold water as shown.

No. 7 is a box filled with sawdust, used in drying the parts.

Tanks 1 and 2 contain clear, hot water and should be provided with overflow pipes.

Tank No. 3 contains a caustic soda solution which is made by mixing one pound of potash, or caustic soda with each gallon of water used. This solution may be used indefinitely by adding a small amount of caustic soda to the solution, as it is found to weaken.

The solution in jar No. 4 contains a solution made thus: One gallon of water, four gallons of nitric acid, and six gallons of sulphuric acid, carefully mixed in the order given.

It is dangerous to mix this solution in any other order, or hastily.

Jar No. 5 contains an acid solution made up of one gallon hydrochloric acid to three gallons of water.

In jar No. 6 is a solution made in the proportion of one-half pound of cyanide

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor	12	Feb. 28
Paige—Oil level adjustments	13	Mar. 7
All Cars—Removing compression knock	14	Mar. 14
All Cars—Rebuilding the storage battery	15	Mar. 21
Cadillac—Rebuilding the radiator	16	Mar. 28
Ford—Magnet replacement on magneto	17	Apr. 4
Saxon—Clutch repairs and adjustments	18	Apr. 11
Timken—Rear axle adjustments	19	Apr. 18
Oakland 32—Oiling adjustments	20	Apr. 25
Ford—Overhauling axle in 1 hour	21	May 2
Hupmobile—Gearbox removal and replacement	22	May 9

to one gallon of water. (This is very poisonous and must be kept away from cuts and all mucous membrane.)

The two tanks of hot water are necessary, No. 1 being used for general rinsing purposes only, and No. 2 for rinsing parts that have been dipped in the caustic soda solution.

Though the practice varies somewhat in the use of these solutions, the following method is to be recommended:

CLEANING STEEL PARTS

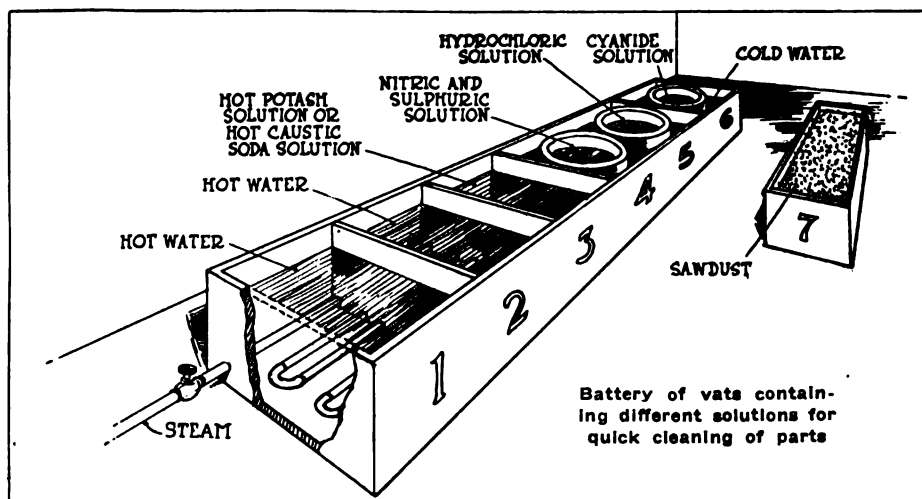
Dip the part in tank No. 3, the caustic soda solution, and let it remain there until the grease and dirt have been loosened. Then rinse in tank No. 3 and dry in the sawdust bath.

CLEANING CAST IRON

Boil in tank No. 3, dip in tank No. 2, rinse in jar No. 4, rinse in cold water, and again in tank No. 1. Dry in sawdust.

POLISHED ALUMINUM

Wash with gasoline, rinse in tank No. 1, dip in jar No. 4, wash in cold water, dip in tank No. 1, and dry in sawdust.



PLAIN ALUMINUM

Dip in tank No. 3, rinse in tank No. 2, dip in jar No. 4, rinse in cold water and dip in tank No. 1. Dry in sawdust. Do not leave the aluminum in tank No. 3 any longer than is absolutely necessary to remove the grease. The solution will eat away the aluminum. Never put aluminum in the potash solution, unless it is immediately put in the acid solution.

BRASS

Boil the brass parts in tank No. 3,

rinse in tank No. 2, dip in jar No. 1, rinse in cold water, dip in tank No. 1 and dry in sawdust.

Small parts may be dipped in the tanks while held in a wire screen basket, thus permitting many small parts to be cleaned at one time.

For the small repairshop, tanks Nos. 2 and 3 would be found sufficient, the latter containing the caustic soda solution, and the former the rinsing water. The sawdust bath would, of course, be necessary. And both solutions must be hot—

the hotter they are the quicker the action.

This method of cleaning may be tried experimentally by mixing up a pail full of the caustic soda solution, heating it to boiling, and using it to clean small parts, such as bolts, gears, nuts and screws. The parts should afterward be rinsed in boiling water, and dried in sawdust.

Note—The solutions used in this method are recommended by the Dayton Engineering Laboratories, Dayton, Ohio. It is the method used by the Swaney Motor Car Co., Fort Dodge, Iowa.

How to Repair a Ford Radiator

IT is no simple matter to pry the fins of the Ford radiator back to get at and solder up the leaky tubes, and the resulting job is usually bad looking, if not properly done. Herein is outlined a simple method of repair that does not destroy the appearance of the radiator.

After the removal of the radiator from the car, the first thing to do is to test it. The inlet, outlet and filler cap must be plugged, so that air pressure may be applied to the drain tube. Then if the radiator be put under water, the bubbles will show where the leaks are.

Fig. 2 shows the plug used to stop up the intake. Another just like it is used to plug the return. It comprises three rubber packing disks, and a soft rubber disk, all mounted on a bolt, and capable of being compressed by a steel block and a cam.

The disks are cut to fit in the intake, or return, as the case may be.

The plug is shoved in as far as it will go, and the cam tightened. This squeezes the disks, forcing them out, and closing up the opening.

The filler opening seal is shown in Fig. 3. A rubber pad is held by a metal plate over the opening, the whole being screw braced against a stirrup caught over the threaded head of the filler snout.

The air pressure is applied to the radiator through the overflow pipe, and

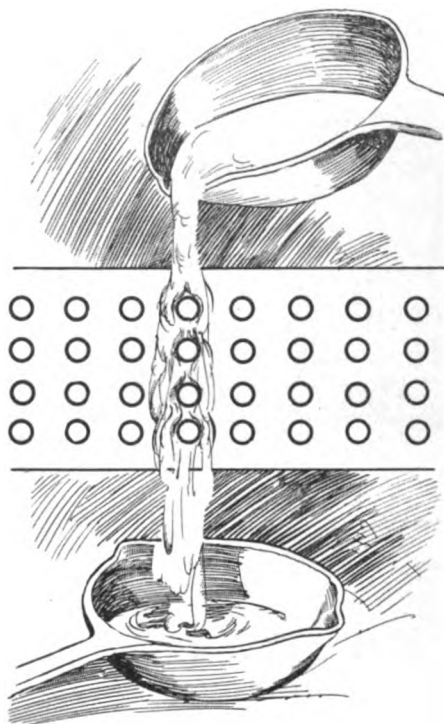


Fig. 1—Illustrating how solder is poured over the leaky radiator tubes

then it is immersed in a tank full of water, and the leaks determined by the bubbles. The leaky parts are marked. They are usually all together.

The radiator is placed on a bench and the leaky part of the tubes heated with a blow torch. When quite hot—a little hotter than boiling—muriatic acid soldering solution is poured through the fins, all over the leaky tubes, to clean their surfaces.

A ladleful of solder is melted. The radiator is bolstered up from the bench on blocks, and the melted solder poured through the radiator, over the leaky tubes, Fig. 1. Note the method of catching the excess solder.

Then the radiator is turned over and the solder poured in from the other side, in exactly the same manner.

A little more acid is then added and a torch applied to melt the solder and sweat it into all the leaks, closing them permanently.

Though leaks and splits of quite a large size may be fixed this way, it is occasionally necessary to tear the radiator down and put in new tubes. The hardest part of the job is tearing the radiator down to the core and building it up again, as this requires a good man with the soldering iron.

(Continued on page 42.)

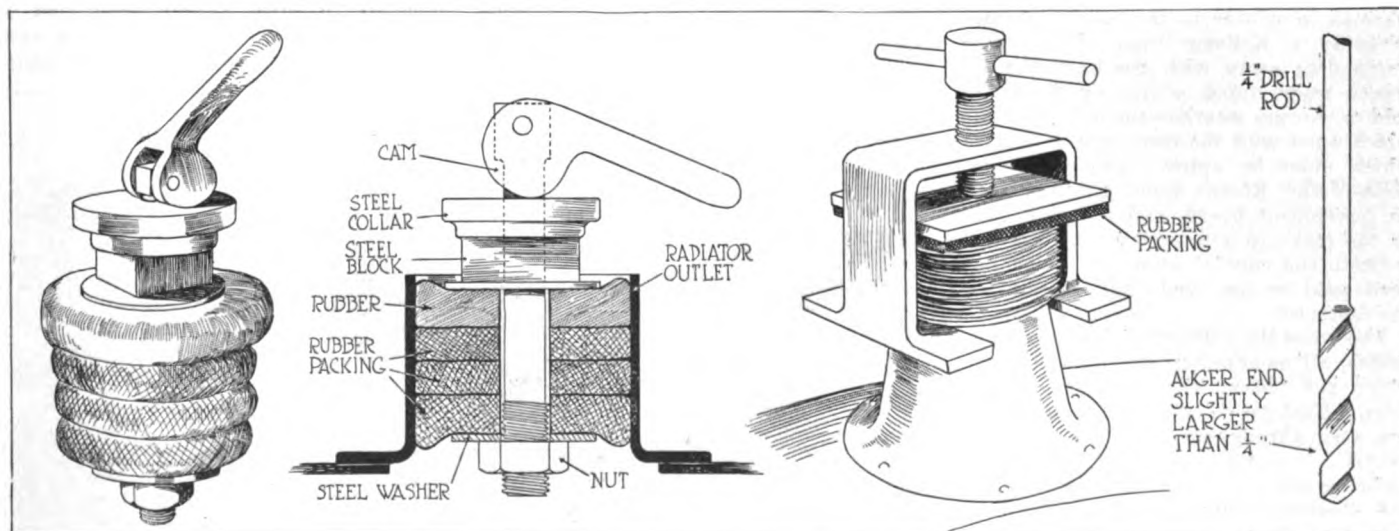
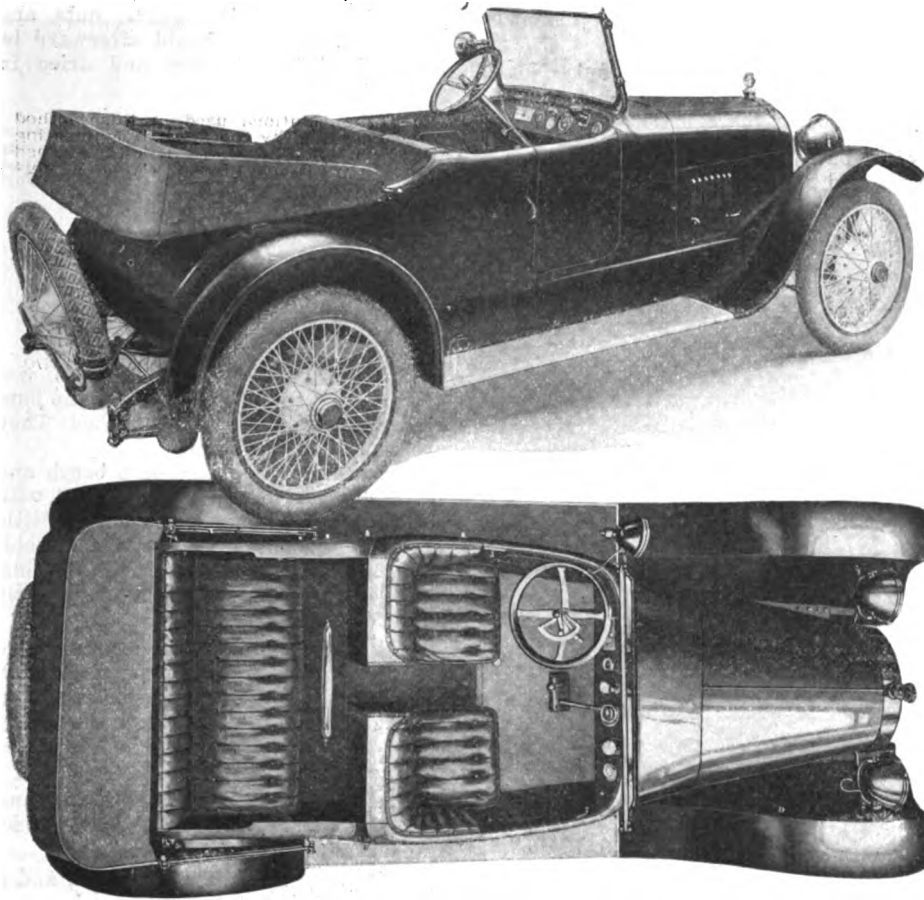


Fig. 2—Left—Rubber plug used to stop passages to radiator. Fig. 3—Center—Clamp for closing radiator filler cap. Fig. 4—Right—Drill rod for expanding tube ends

Anderson Six Completely Equipped



The convertible five-passenger roadster

FINE bodies and unusually complete appointments for a car at any price characterize the Anderson six which sells for \$1,295. It is made by the Anderson Motor Co., Rockhill, S. C. A full list of extras comes with the car. Even the most exacting motorist will find nothing to add outside of the customary spare tire. For convenience in night driving there is a Hawthorne spotlight; a tonneau foot rest heater provides warmth in winter to the rear seat passengers; a Kellogg engine-driven tire pump does away with the backache incident to pumping a tire by hand; in cold or stormy weather the side curtains which open with the doors are a feature which must be appreciated. A Boyce Moto-Meter, Klaxon horn, gasoline gage on instrument board, and non-skid tires on the rear are noteworthy details which indicate the careful attention which has been paid to the needs and comfort of the motorist.

There are three styles of five-passenger bodies, all mounted on the same chassis, which has 120-in. wheelbase and 33 x 4 tires. High-grade standard components are used throughout, such as a Continental 3 1/4 x 4 1/2 in. engine with Westinghouse starting, lighting and ignition, and Zenith carburetor, Borg & Beck dry plate clutch, Gemmer steering gear and standard gearbox and axles.

A distinctive Anderson creation is the

Spotlight, Tonneau Heater, and Moto-Meter on Six Selling for \$1295—Three Bodies—Standard Units

Convertible Sport model, which may be either a two-passenger racy runabout or a roomy five-passenger touring car. In the former guise it has a sloping rear deck which gives no clue as to what is hidden beneath so cleverly is the design worked out. It may be quickly transformed by folding back the rear deck to form the back of the rear seat. In this position it is a full-fledged five-passenger, roomy and comfortable, and looks like a five-passenger and not like a convertible roadster with a folding rear seat which is cramped and uncomfortable.

Both in appearance and comfort it is a real touring car. The backs are shoulder high, the seats are extra wide, the upholstery is deep and just the proper tilt to secure luxurious riding. With the rear compartment closed, there is ample storage space for suitcases or other luggage, which makes it an ideal car for two on a tour. In addition there is a built-in luggage compartment in the rear for storing tools, spare tubes and other motoring requisites.

Besides this model there is a five-passenger touring car with divided front seats and a similar model with the front seats undivided.

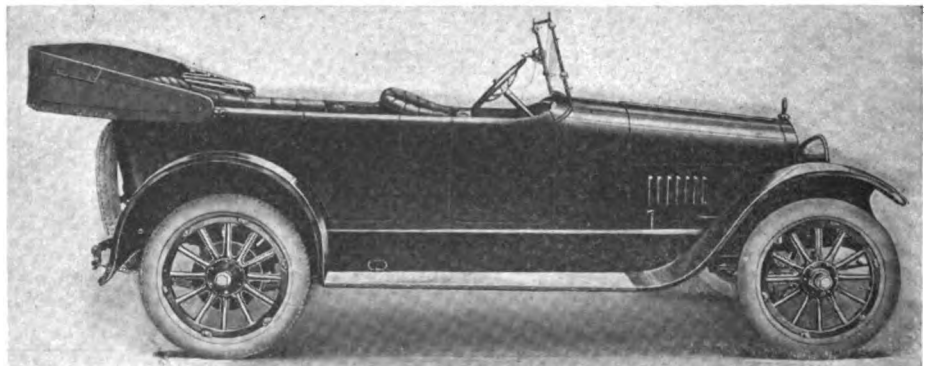
Inasmuch as the company has built fine carriages for 28 years, more than usual importance is attached to the body work, which is all done in the factory. Fine materials, expert workmanship and advanced design are combined to give the ultimate in a car of this class.

Emphasis is laid on the performance. Two to 60 m.p.h. is claimed because of the relatively powerful engine and the moderate weight, stated to be 2750 lb.

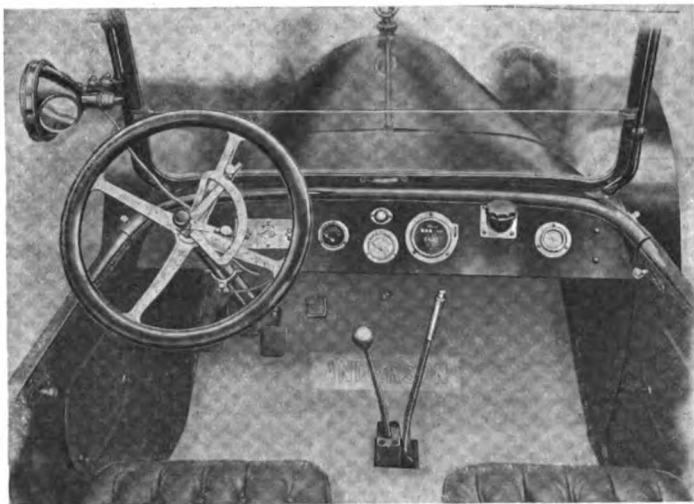
The engine is combined with clutch and gearbox to form a unit suspended on three points. It has a piston displacement of 223.95 in. and is designed to develop more than 40 hp. The carburetor has no adjustments outside of an air valve control at the side of the steering column. It is fed from a tank in the

SPECIFICATIONS

Price—	
Touring, 5-Pass.	\$1295
Roadster, 2-Pass. Convertible	\$1295
Make of Motor	Continental
Number of Cylinders	6
Shape	L
How Cast	Block
Bore	3 1/4
Stroke	4 1/2
Horsepower	S. A. E.
Ignition	Westinghouse
Carburetor	Zenith
Engine Starter	Westinghouse
Lighting System	Westinghouse
Clutch	Borg & Beck
Gearset	3-Speed
Wheelbase	120
Tires	33x4
Wheels	Wood
Steering	Gemmer
Type Rear Axle	Full floating
Option	Wire wheels \$100 extra



The standard five-passenger touring car with undivided front seat



Instrument board and control mechanism of the Anderson car. The gasoline gage is next to the filler opening

The regular equipment including the special features already mentioned comprises a Stewart speedometer; ammeter; motor-driven Klaxon horn; Williard storage battery; Boyce Moto-Meter, large size; Kellogg engine-driven tire pump; one-man top of Rayntite, with envelope of same material; quick-acting curtains, attachable from the inside; adjustable ventilating windshield; combination heater and foot rest which utilizes heat from the exhaust; Hawthorne spot light; license brackets; non-skid tires on rear; five demountable rims; tire carrier; jack and full set of tools.

Dorris Truck Increased

ST. LOUIS, MO., May 14—The Dorris Motor Car Co. will make an advance of \$100 in its 2-ton truck, effective June 1. This makes the price \$2,285.

cowl. Lubrication is a constant level combination force-feed and splash system. Cooling water is circulated by a centrifugal pump.

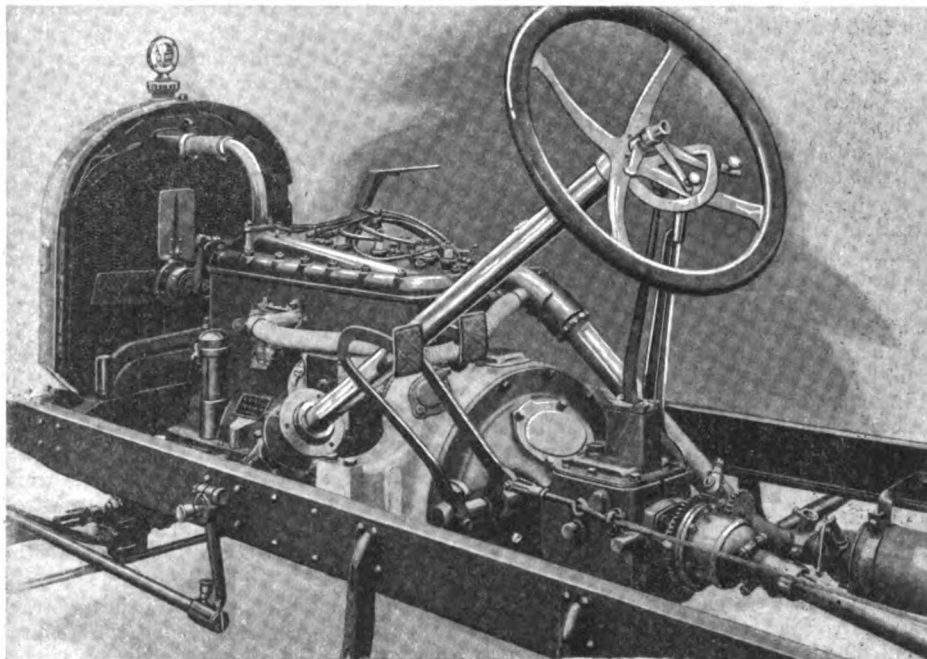
The gearbox gives three speeds forward and one reverse, and the shafts are mounted on Gurney ball bearings. The gearshift lever is mounted directly on top of the box.

The frame is 20 pt carbon steel, cold rolled. The side members are $4\frac{1}{2}$ in. deep, the flanges $1\frac{1}{2}$ in., and the stock is $\frac{5}{32}$ in. thick. Springs are semi-elliptic and the main leaves are chrome vanadium steel, the front is 36 x 2, seven leaves; and the rear 56 x 2, nine leaves.

The rear axle is a floating design with heavy pressed steel housing. Spiral bevel gear and pinion are used, and all bearings are Bower roller. Front wheel bearings are Gurney.

The service brake contracts on the rear wheel drums and the hand brakes expands inside the same drums. Both sets are lined with Raybestos.

The steering gear is an irreversible worm and gear.



Front of chassis showing unit power plant

Jumped 54 Feet Into the Limelight



WHEN the Central Kansas Motor Co., Salina, Kan., wanted to get some publicity for the Studebaker it staged a flying leap stunt in the middle of Main street. Of course, the dealer made no secret of the affair, so there was a big crowd out. If the town were larger the crowd would have been bigger—they were all there.

R. C. Carlisle, secretary of the company, measured the jump from the take-off to the spot where the rear wheels hit and found it to be 54 ft. 2 in. The wedge-shaped jumping platform is 15 ft. long and 15 in. high at the take-off. The car was making about 55 m.p.h. when it leaped. The jump was made April 14.

Spectators agreed that the Studebaker can work up speed and is made of pretty good stuff.

Dealers Stage Tractor Demonstration

Second Southwestern Kansas demonstration, staged for the most part by motor car dealers and garagemen, draws 7000 spectators. One automobile man has sold 97 tractors in a single season, and the promise of the coming season is excellent.—Editor.

SOUTHWESTERN KANSAS held its second annual tractor demonstration at Dodge City, Wednesday, Thursday and Friday, May 2, 3 and 4, and in many respects it was the most remarkable one yet held outside of the national events of 1916. Field work was the program for two of the three days and twenty-nine flag-bedecked tractors and tractor attachments pulling ninety-eight plow bottoms all finished their allotted space without once stopping.

An interesting feature of the demonstration was the fact that it was a dealers' affair. Dealers arranged it and made the rules, and neither manufacturers nor distributors had anything to say about it. Out in that section of Kansas, which is primarily a wheat raising section, tractor agencies are quite numerous. A number of implement dealers handle tractors and a large number of automobile dealers and garages have tractor agencies and carry samples. Only a few manufacturers, who do not have agencies in Dodge City or nearby towns, made their own exhibits.

Not a machine experienced trouble of any kind. And on each of the two days, not more than fifteen minutes elapsed from the time the first tractor completed its allotment until the last one left the field. It was by long odds the best showing yet made in a public way by the tractor industry.

The three days were all that could be desired from a climatic standpoint. The skies were bright and clear; there was neither rain nor wind, and the ground was in the best possible condition. With all these favorable elements it was only natural that the demonstration should draw a crowd, and it did.

Possibly seven thousand people were there, which is good when it is considered that Southwestern Kansas is a region of large farms and small population. Many came from more than a hundred miles. The hard level dirt roads made farmers forget distance and many were on hand from Colorado and Oklahoma.

Demonstration Well Managed

The demonstration was well managed. Rules were enforced to the letter. The tractors were required to be on the field an hour and a half before time for plowing. They were made to plow one round to adjust their plows and arrange other details in advance of the public

demonstration. Fuel tanks were examined and every tractor carrying a kerosene sign was required either to burn kerosene or change its sign. A few were changed, but of the twenty-nine, fourteen ran on kerosene. This was sufficient to convince the farmers that kerosene is a reality as a tractor fuel.

125 Acres Plowed Each Afternoon

Each afternoon approximately 125 acres were plowed. A depth of at least 6 in. was required and this rule was enforced. No back or dead furrowing was permitted, each machine being required to plow around the land. When completed the two fields presented as pretty an appearance as any land ever seen in that section. It was a strong testimonial to the efficiency of the tractor. Most of the land was wheat stubble, but on the second day some new land was broken. This was dotted with buffalo wallows, relics of Indian days, but when the work was done every wallow had disappeared and the field was level. The wallows had no noticeable effect on the work of the tractors.

The smoothness with which the tractors worked in the field and the general success of the demonstration was attributed largely to the influence of the automobile dealer tractor agents, who showed themselves experts in handling their tractors.

The wheat failure of Southwestern Kansas is all that kept the exhibitors from doing a large business, although many sales were made. Most of the land is now being planted to corn, and there will be no summer plowing period. In the fall it is probable the land will be seeded back to wheat, but the usual practice is to drill the wheat in between the corn rows without plowing. This cannot be done should the season be sufficiently wet to produce rank weed growth. Plowing then will be necessary and there will be a big tractor business.

The crowd at Dodge City was different in many respects. It wasn't skeptical of the tractor. It admitted the tractor is a success, and was there merely to judge relative merits. There are many counties in that vicinity where more than a hundred tractors are already owned. One automobile dealer at Larned has sold as high as ninety-seven in a single season.

The educational foundation for tractor sales is already substantially built. All

that is needed is a crop season which demands tractors and sales will be forthcoming. In this respect the Dodge City demonstration will have a far reaching influence in indirect results. When the farmers once get ready they will buy the machine which impressed them most at Dodge City. In this section price will not be the determining factor. Farmers here are financially able to judge on performance.

Several representatives of the Kansas City Tractor Club were present and participated in the public meetings which were arranged for the benefit of the farmers. At these meetings the importance of the tractor as the mechanical power of the farm during the war was emphasized. The impression was conveyed to the farmer boys that unless they learned to operate tractors they might be conscripted into military service and their places on the farms filled with other young men competent to handle tractors. The meetings and the plowing demonstrations together awakened tractor sentiment to such an extent that all of Southwestern Kansas is now "sold" on the tractor.

Several tractor attachments were demonstrated. Most of the farmers own medium or high priced cars, which place them beyond the appeal of a Ford attachment. However, the attachments did splendid work in the fields.

The manufacturing companies or distributors represented and the dealers through whom their products were demonstrated were as follows:

Dealers Who Demonstrated

Advance-Rumely Thresher Co., through Landes Bros., Dodge City, automobile and implement dealers; Rumely Oil-Pull 15-30, with five 14-inch bottoms.

Avery Co., through E. E. Cook, Great Bend, Kan., automobile and tractor dealer; Avery 8-16, with three 14-inch bottoms; Avery, 18-36, with eight disks.

C. H. Bantley Sales Co., Kansas City, through Robert A. Jones, garage man and tractor dealer, Dodge City; Bates Steel Mule 13-30, with four 14-inch bottoms; Pullford tractor attachment, with two 12-inch bottoms.

J. I. Case Plow Works, Kansas City; Wallis Cub 26-52, with five 14-inch bottoms.

Dauch Mfg. Co., through City Hardware Co., implements and tractors, Dodge City; Sandusky 10-20, with three 14-inch bottoms; Sandusky 15-35, with four 14-inch bottoms.

H. A. Dougherty Motor Co., truck and tractor distributors, Kansas City, through M. R. Zimmer, automobiles and tractors, Dodge City; Allis-Chalmers 10-18, with three 14-inch plows.

P. J. Downes & Co., automobiles and tractors, Kansas City, through L. M. Taylor & Son, automobiles and tractors, Bucklin, Kan.; Waterloo Boy 12-25, with three 14-inch bottoms.

Elgin Tractor Corporation, Elgin, Ill.; Elgin 9-18, with two 14-inch bottoms.

Gray Tractor Mfg. Co., Minneapolis; Gray 18-30, with four 14-inch bottoms; Gray 18-30, with harrows.

Hall Bros. & Reeves Motor Co., Kansas City, through Rush & Scudder, automobiles, implements and tractors, Dodge City: Big Bull 12-24, with three 14-inch bottoms; Big Bull 7-20 (1916 model), with two 14-inch bottoms; Tracford tractor attachment, with two 12-inch bottoms.

Hart-Parr Co., through Oliphant & Molitor, implements, Offerle, Kan.: Little Devil 15-22, with three 14-inch bottoms; Oil King 23-35, with six 14-inch bottoms.

International Harvester Co., through Nevins Hardware Co., implements, Dodge City: Mogul 12-25, with four 14-inch bottoms;

Titan 10-20, having three 14-inch bottoms.

Klieson Tractor Co., tractor attachment manufacturer, Dodge City: Klieson tractor attachment, with three 12-inch bottoms; Klieson tractor attachment, with two 12-inch bottoms.

Pioneer Tractor Co., Winona, Minn., through H. F. Krey, tractors, Dodge City: Pioneer Pony 17-34, with three 14-inch bottoms.

George O. Richardson Machinery Co., tractors, Wichita, Kan.: Russell 12-24, with three 14-inch bottoms.

Rock Island Implement Co., through J. A.

Evans, implements and tractors, Cimarron, Kan.: Heider Model C 12-20, with three 14-inch bottoms; Heider Model C 12-20, with five disks.

Southwest Sales Co., tractor distributors, Wichita, Kan.: Nilson, Jr., "25," with four 14-inch bottoms.

Stauder Mfg. Co., St. Paul, through E. E. Beck, automobiles, Dodge City: Stauder tractor attachment, with two 14-inch bottoms.

Tractor Sales Co., Salina, Kan., through R. L. Day, garage and tractors, Dodge City: All-Work 12-25, with three 14-inch bottoms.

My Creed on Salesmanship

HERE'S a California dealer who has analyzed salesmanship and gotten a lot of plain truths out of the analysis. They are the kind of truths that can be put to work.

—Pennock

EDITOR Motor World: Enclosed please find copy of suggestions or rules on Salesmanship. It is what I term My Creed on Salesmanship.

Trusting that you may see fit to use this in the Motor World, I beg to remain, Yours very truly, R. P. PENNOCK, Reilly Motor Car Co., Los Angeles, Cal.

Pennock's Creed

Above all things be agreeable. All things being equal, a man will buy where the salesman is the most agreeable. He will buy clothing, automobiles or anything else of the man who acts as though he likes him and is anxious to please him. Exert yourself to make a pleasing impression; therefore dress well, but do not overdress; cultivate a pleasing voice; learn to converse entertainingly. Cut out all mannerisms, give the impression of being a gentleman, honest, square, anxious to please, and be good natured.

Know your goods, don't let there be any question relative to the manufacture, history, construction and uses of your car that you cannot answer. Know all cars that your car is in competition with. Put in your spare time making an encyclopedia of yourself concerning your car.

Don't Argue With Prospects

Don't argue. Argument never sold a car. Go with your man in your talk, and not against him. Lead, but do not oppose. Don't try to show him where he is wrong, show him where you are right. Don't antagonize; make him feel that he knows something. Make things plain; do not use words that he cannot understand; you can explain anything with simple language. Don't misuse your technical knowledge. Flatter, not awe.

Tell the truth. Do not lie or exaggerate or mislead or conceal. Make him feel that you are sincere and mean every word that you say, that every statement

you make is of par value. If you feel that your car needs lying about QUIT, as you owe it to yourself as well as the man for whom you are working. There are lots of cars that will sell without being lied about, and you should sell one of them.

Be dependable when you make an engagement, be there at the time—or before. When you make a promise, keep it. Promises not kept are better not made.

Remember faces and names. No man likes to be forgotten. Remember characteristics. A little study and you will be able to do this.

Don't be egotistical. Eliminate the pronoun "I." Don't talk about yourself; tickle your man, not yourself, as he is the man you must sell.

Don't Get a Big Head

Don't get the big head, or think that the firm cannot get along without you, because when you do, and the boss finds it out, you will be looking for a job. Do not think that you are better than anybody else. Let the boss do that, and you will be a success wherever you work.

Talk success! Think it! Feel it! Don't get downhearted, regardless of how bad things are going. There is someone that you know that you would not trade places with.

Be human. It is because you are a human being that you are hired to sell cars. Otherwise the firm would have sent a catalog. So be human, likable, engaging, agreeable, accommodating and full of energy. The public likes to do business with that class of salesman.

Don't knock, for every time that you mention the name of some other car you are advertising that car, and you want to keep the man's mind on your car.

The Greatest Business

Selling goods is the greatest business in the world. It takes all there is in a man. You have to know psychology; you need tact, intelligence, self control,

courage, persistence and good nature. It is not a job for a second rater. All men admire a good salesman—as they are scarce. Most men are good buyers.

Never take a drink during business hours. It is offensive to most men and will lose you a good many sales. Do not smoke when with a prospect, as it shows very bad manners.

Above all things, never talk to a prospect when badly in need of a shave, as it speaks for carelessness, and it leaves a bad impression.

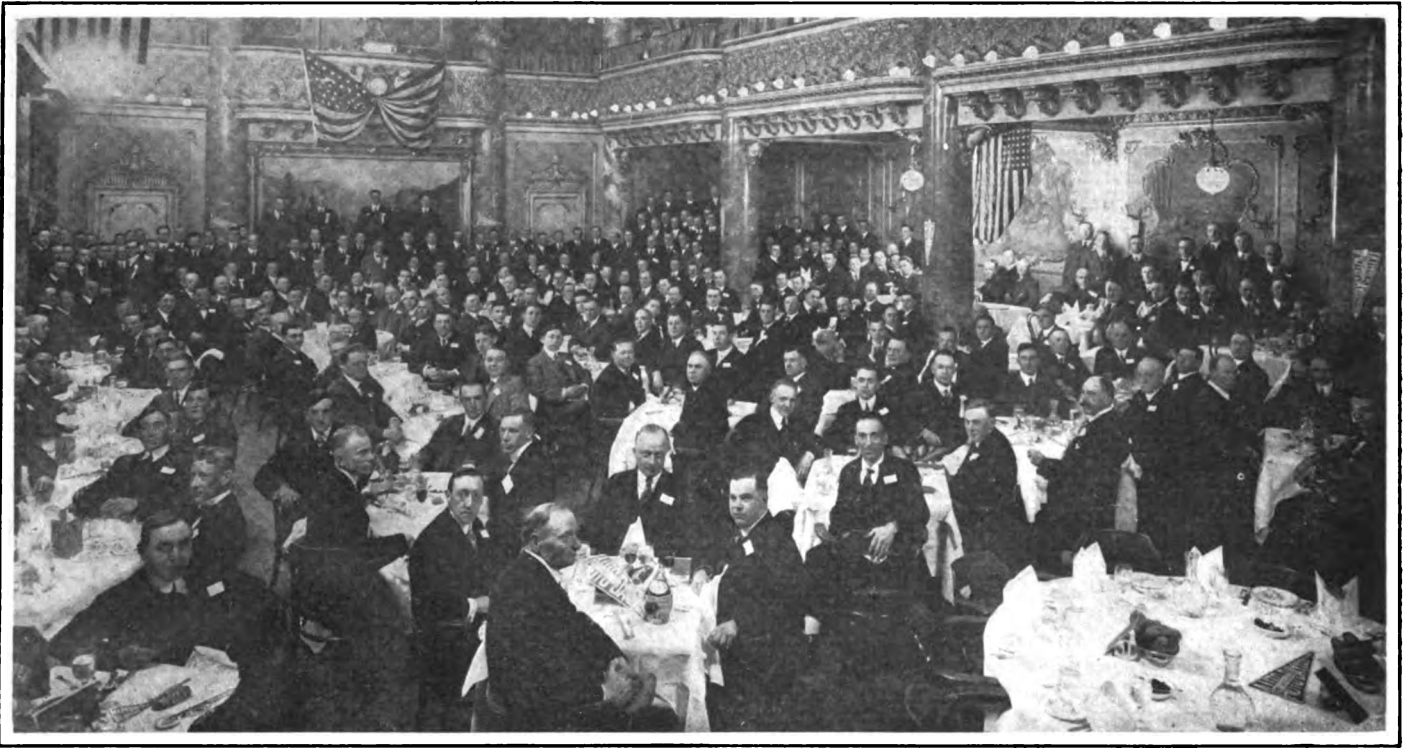
Be loyal to the firm that you work for, and always be willing to go out of your way for them. They notice all those things and you will profit in the long run. And remember that the firm's success is your success, therefore always do your best.

Alien Enemies Ordered Away

DETROIT, May 12—Alien enemies living within one-half mile of Detroit munition factories must move by June 1 or suffer the penalty of immediate arrest. They will not be allowed to enter the half mile zone except when written requests from the alien's employer has been approved by the Department of Justice and the United States marshal. It is said that many of Detroit's foreign population will be affected by the order.

Will Buy "Liberty Bonds"

ST. LOUIS, May 14—The St. Louis Motor Trade Accessory Association is going to invest its surplus funds in "Liberty Loan" bonds. Instructions to make this investment were given to the treasurer at the weekly meeting last Tuesday. The amount has not been fully determined, but it will exceed \$200, as that amount more than is considered necessary to the safety of the association was indicated by the last report of the treasurer. After this motion had been carried, on motion of John F. Shuford, the association adjourned by singing "America."



This is the dinner that was held at the end of the sessions in which the whole motor trade of San Francisco was welded into a big, strong organization. It is the climax of co-operative effort in the Coast's metropolis and may pave the way for a big Coast association, which is badly needed

Whole San Francisco Trade Organizes

All Divisions Are United in One Body—Dealers, Garagemen and Other Classes Join in Work for the Betterment of Conditions at the Golden Gate

SAN FRANCISCO, May 12—After some two years of careful maneuvering and difficult work on the part of the boosters of the project, the San Francisco Automobile Trade Association has been formed.

This organization embraces all crafts identified with the automobile industry, including the motor car dealers in the city, and is to be a unit of the California Trade Automobile Association, which is made up of the different county organizations.

The State-wide association is to be a sort of Chamber of Commerce to the trade, which will take up the trade tangles and endeavor to straighten them out to the mutual advantage of the members of the association.

The objects of the association are to standardize selling through established channels of trade and the formation of credit and employment bureaus and other departments along these lines in order that every member of the association may secure the most benefit from this co-operative plan.

The allied trades banded together in the newly organized San Francisco association are the Automobile Body Builders, Painters and Trimmers Association, the Automobile Metal Workers' Protec-

tive Association, the Automobile Electrical Workers' Association, the San Francisco Tire Dealers' Association, the Commercial Paper Men's Association, the Automobile Dealers Association of San Francisco, the Garage Owners' Protective Association.

The officials of the new organization are: President, W. L. Hughson, president of the Pacific Kiesel Kar branch; first vice-president, Chester N. Weaver, head of the San Francisco Studebaker agency, and member of executive committee of Automobile Dealers' Association of San Francisco; second vice-president, J. B. Kelly, president of the Garage Owners' Protective Association; secretary and treasurer, Arthur D'Ettel.

The members of the executive board who will fashion the policies of the association, in addition to the officials, are: W. B. Larkins, president of the Automobile Body Builders, Painters and Trimmers Association; W. M. Gibson, president of the Automobile Metal Workers' Protective Association; C. Cushman, president of the Electrical Workers' Association; Colonel Power, president of the San Francisco Tire Dealers' Association, and Kent Weaver, of the Commercial Paper Men's Association.

The formation of the San Francisco association is rather an interesting exhibition of perseverance on the part of the boosters of the trade association plan. An original attempt was made two years ago to start the association here. It failed. But the plan was favorably received in the automobile trade centers in the northern end of the State. County organizations were formed, and semi-annual State meetings were held. The organization grew and prospered. Some six months ago a second attempt was made.

Arthur D'Ettel, one of the champions of the association plan, assisted by J. B. Kelly, president of the Garage Owners' Protective Association, and W. L. Hughson, of the Automobile Dealers' Association, hit upon the plan of organizing the different trades in the industry in individual organizations. They met with marked success, and after this work was completed a general meeting was held in one of the city's big restaurants and the different individual organizations voted to join in a general trade association to be known as The San Francisco Automobile Trade Association.

Delegates from the State association were at hand and quickly welcomed the local organization into the State body.

5% Car Tax Fought by Whole Motor Industry

Would Wipe Out the Profits of Some Companies—Part Makers Point Out Possible Disaster

WASHINGTON, May 14—Protests continue to pour into Washington on the proposed 5 per cent tax. Factories and dealers have marshalled their forces against the measure and there is a large delegation in Washington bringing all possible pressure to bear in an effort to make plain the injustice of the tax and its confiscatory nature.

The factories are headed by General Manager Reeves of the National Automobile Chamber of Commerce, who already has appeared several times before the Ways and Means Committee. In addition to Reeves there are present the heads of many of the principal factories. Several dealer associations also have sent representatives.

In his argument before the Senate Committee, Reeves said, in part:

"Of the 450 listed manufacturers 12 produce 80 per cent of the total output. It is the prosperity of a few that makes it appear that all are prosperous. To show what a hazardous business this is, 718 manufacturers have failed or retired from business during the last five years.

"The average profits on sales for the industry are between 10 and 12 per cent. Imposition of the 5 per cent tax simply reduces this to from 5 to 7 per cent. The great majority of companies average below 10 per cent and some of the older companies don't make 6 per cent. Applied to these companies the 5 per cent tax will be confiscatory. The automobile companies can't absorb the tax and they can't pass it on to the public without decreasing demands."

Following is a copy of the protest which the Motor and Accessory Manufacturers has prepared and sent to the senate committee:

To the Members of Congress:

Recent referendum votes by the 266 members of The Motor and Accessory Manufacturers Association conclusively prove that they are in favor of preferential delivery of their products to the Government at reasonable profit; in favor of conscription; in favor of shouldering their share of just taxation; in favor of universal taxation on stamps, checks, commercial paper, etc., which would be borne by all citizens of the United States; but that the association is opposed to unjust and discriminating tax on the automobile industry.

The tax of 5 per cent proposed to be levied upon the automobile manufacturer is certain to seriously affect all manufacturers of motors, parts and accessories. No automobile manufacturer in the United States manufactures his car complete. Members of The Motor and Accessory Manufacturers Association manufacture the component parts of all automobiles, trucks, tractors, airplanes, bicycles, motorcycles, and motor boats, made in the United States, so it can be readily seen that any taxation imposed upon the motor car manufacturer directly affects the manufacturer of motors, parts and accessories.

A very large percentage of parts, such as frames, springs, magnetos, etc., are built

upon specifications furnished to the parts manufacturer by the maker of the complete car. Excessive taxation on the complete motor car manufacturer will unquestionably eliminate many of them from business, which in turn, will react on the parts makers with whom they are doing business. In consequence, thousands of employees, both men and women will be thrown out of work.

Parts made for one manufacturer cannot be resold to another manufacturer as these parts would not fit and consequently these parts would be a total loss to the parts manufacturer. No motor car manufacturer makes his spark plugs, wheels, tires, magnetos and various other component parts. A great many motor car manufacturers assemble into the complete car those parts furnished him by members of The Motor and Accessory Manufacturers. Some motor car manufacturers make their own frames, while others do not. Some make their own motors, but the majority are furnished by the motor manufacturers.

While it is impossible to furnish exact figures of total capitalization; gross volume of annual business; number of persons employed and the gross weekly pay rolls, it may be stated that the capitalization of the 266 members of the association approximates one billion dollars.

The number of persons employed, both men and women, will easily reach 650,000. In our membership are organizations employing from 10 to 25,000 persons, paying weekly salaries ranging from \$138.08 to approximately \$400,000. The gross annual business of these organizations varies from \$36,013.36 to \$100,000,000. These figures do not by any means show actual net profits, which by the way, do not compare with what they were prior to the war.

The motor and parts business has been compelled to increase its costs for labor and materials due to increasing prices in raw materials and the scarcity of labor. Forgings, leather, sheet steel, steel tubing, iron castings, steel castings, aluminum castings, bearings, etc., have all increased in price.

It is very doubtful whether the automobile buying public would absorb this increased tax as the price of automobiles, prior to this proposed taxation, has been increased in many instances two and three times. Automobiles are now selling considerably above normal price, all of which has a tendency to curtail production. Such a tax might be possible when prices were being reduced, but today, when an \$800 car is selling for \$1,050, it would not seem that there is a possible chance of charging this additional 5 per cent to the consumer.

Members of this association feel that there could not have been a more unfortunate time to have the price of automobiles increased than at the present. Retrenchments are being made in the purchase of automobiles throughout the country. Thousands of owners of used cars who contemplated buying new machines are content with the old model for a year or perhaps longer. Already production is being curtailed from 25 to 40 per cent by many manufacturers, and others will have to follow in their wake. As reduction of output is increased, manufacturing costs inevitably increase. Quantity production of motors, parts and accessories as well as the complete motor car has always been a predominating feature in the retail sales price. The 266 manufacturers allied with The Motor and Accessory Manufacturers Association petition you to give unusual consideration to the above facts and ask that you do not unjustly overburden the motor car industry with taxation. Respectfully submitted, The Motor and Accessory Manufacturers Association, L. M. Bradley, Manager. New York, N. Y., May 8, 1917.

Garagemen's Lien Bill Hard Hit in New York

Dies in Committee—Double License Also Expires—But New License Plates Get By

ALBANY, May 14—Several bills which were introduced during the legislative session that just closed did not become laws. The principal measure was the Brown bill which would have doubled license fees on all pleasure cars. This bill was killed in the Assembly rules committee, after it had passed the Senate and been sent over to that house. The measure was the subject of attack by motor car interests throughout the state.

Another measure which failed of passage was the Thompson bill which gave a lien to garagemen on cars which they had repaired. If a bill remained unpaid the garageman could take the car and hold it to satisfy his lien whenever he happened to find the particular car. This bill, while favored by garagemen, didn't get out of committee.

Two other measures of great importance which have passed both the House and the Senate are the Cromwell bill which provides for the registration of all owners of cars in New York, and the Wheelock bill which makes illuminated transparent license plates mandatory after February, 1918. Neither of these bills has been signed by the Governor.

White Resigns From Cadillac

DETROIT, May 14—D. McCall White, chief engineer of the Cadillac Motor Car Co., has resigned. No announcement has been made as yet regarding his successor. It has been reported that White has designed an airplane engine in which the Government is interested and that this is the cause for his resignation. White was chief engineer of the Napier Motor Car Co. of England prior to his connection with the Cadillac company.

Ford May Increase Price

DETROIT, May 15—The Ford Motor Co. is notifying dealers that an advance in price may be necessary in the near future. Unfilled orders now on the books amount to \$100,000 and these will be filled at prevailing prices, but dealers have been notified that all orders from this time on are subject to an advance and that delivery to consumers must be subject to such an advance. It is stated that any that is made would be because of the rapidly increasing price of materials.

Be Saw Elects Officers

HARTVILLE, OHIO, May 15—The Be Saw Tire & Rubber Co., which recently increased its capital stock to \$1,000,000 and will build factory additions, has elected these officers: President, Charles A. Be Saw; vice-president, I. M. Putnam; secretary-treasurer, D. W. Be Saw.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

H. J. Frost, formerly service manager for the Eddie Bald Motor Car Co., Pittsburgh, has taken a position as sales manager for the Cole Motor Co., Pittsburgh.

C. A. Oldham has been made the district manager of the United States Tire & Rubber Co., St. Louis. He was formerly resident manager at Kansas City.

Carl Hanson, formerly cost and production manager of the General Motors Co., is now cost and production manager of the Dorris Motor Car Co., St. Louis.

Victor Launeau has been made chief automobile designing engineer of the Pan Motor Co., St. Cloud, Minn., a new concern organized under Delaware laws for \$5,000,000 to manufacture automobiles, trucks and tractors. Launeau was formerly research engineer for the Buick Motor Co.

J. G. Murphy, for the past 11 years connected with the Pierce-Arrow Motor Car Co., Buffalo, has been appointed superintendent of the Pathfinder Co., Indianapolis.

A. F. Egelus, Maxwell Motor Co. branch service manager at Denver, has been transferred to Dallas, where he will hold a similar position.

E. O. Thackston has been made Wyoming district salesman for the Maxwell Motor Co., Denver, to succeed the late William H. Turner. He was formerly Hupmobile agency sales manager in Dallas.

C. E. Morton has been appointed by the Packard Motor Car Co. as district manager for the Northwest portion of the Pacific Coast, with headquarters in Seattle.

C. Aerne, formerly of Portland, has been appointed manager of the Seattle branch of the Laher Auto Spring Co., recently located at 1409 Broadway, Seattle.

Charles B. Harris, Portland, has been appointed district representative for the Paige-Detroit Motor Car Co., with Oregon and Washington as his territory, and headquarters in Portland. Harris has for many years been sales manager for the H. L. Keats Auto Co., Portland.

Edward C. Reid, St. Louis, has been made manager of the motor accessory department of the Geller, Ward & Hasner Hardware Co., St. Louis, jobber and retailer.

Oran C. Snyder, who for the past ten years owned and operated the Broad St. Garage at Bethlehem, Pa., and who sold out his business in December, has joined the sales force of the Pittsburgh branch of the Republic Rubber Co.

J. R. Brooking, formerly with the Studebaker in the Northwest, has been made district manager for the Bailey Non-Stall Differential Corp., Chicago. He will cover Chicago, Minneapolis and St. Louis territory.

Eugene R. Johnston has been made manager in Kansas City territory for the Bailey Non-Stall Differential Corp. Formerly he was with Maxwell in New England.

J. B. Schroeder has been made district manager in Michigan, Ohio and Indiana for the Bailey Non-Stall Differential Corp. Formerly he was with the Miller and Thermold rubber company.

John Whyte has been made chief engineer of the Bailey Non-Stall Differential Corp. Formerly he was with the Prest-O-Lite Co.

William J. Lacasse, northwest supervisor

for the Maxwell Motor Sales Corp., has been given charge of the entire Pacific coast. He is transferring his headquarters from Portland, Ore., to San Francisco.

W. B. Collins, whose resignation as sales manager of the Parker Rust Proof Co. was recently announced in The Motor World, has purchased an interest in the Marshall Castings Co. of Marshall, Mich., manufacturers of manifolds and exhaust pipes.

Supreme to Build Motors

CLEVELAND, May 14—The Supreme Motors Corp. has been incorporated at \$1,000,000 to manufacture three types of motor, a twin-six, a six, and a four. The experimental work has been carried on by the Davies-Mitchell Engineering Co., this city, which has been absorbed by the Supreme Motors Corp. Courtney N. Mitchell is the designer; B. J. Cline, formerly with the Chandler and the Elgin, has been made production manager. Experimental work is in charge of C. E. Manning, for three years with the Continental. The four-cylinder motor is adapted for truck and tractor work while the others are designed for pleasure cars. The officers are: president and general manager, C. F. Jamison, formerly with the Saxon and Elgin; vice-president and treasurer, Charles H. Davies, organizer of the company; vice-president and director of manufacturing, B. J. Cline; secretary, William J. Lavery; director of engineering and purchasing, C. N. Mitchell; assistant chief engineer, C. E. Manning.

Some Ford Dealers Are Having Hard Time

NEW YORK, May 14—Ford dealers throughout the country are having difficulty getting cars owing to the freight car shortage and the fact that the demand is ahead of production. In some cases dealers are being offered premiums running as high as \$100 and used Fords are selling in the neighborhood of new car prices.

Premiums are being offered in St. Louis, but because of the signed order arrangement with the Ford Co., they cannot take advantage of the offers. The St. Louis assembling plant is 600 cars behind in deliveries. The cars that are used from 3 to 7 months, but well cared for, sell at new car prices.

Ford deliveries in Minneapolis are estimated to be $\frac{1}{4}$ behind orders. 50,000 cars were built here last year and with this 16,000 car shortage, northwestern dealers are expecting the monthly allotments to be cut down.

In the East and South, freight congestion makes the situation serious. Foodstuffs and perishable freight take precedence over everything and a car famine is imminent. In a number of communities in Georgia the dealers are combining in page advertisements in which they advise people to buy cars while the present stock lasts and that no predictions can be made for the future. Repairmen are kept busy keeping old cars running, for any car which is serviceable is being held by its owner.

Grand Rapids All Set for Next Year's Work

Elects Officers and Is Taking Up Activities That Will Benefit the City's Trade

GRAND RAPIDS, MICH., May 14—New officers were chosen Wednesday evening by the Automobile Business Association, Inc. They are: President, C. J. Litscher, Litscher Electric Co.; vice-president, W. K. Philp, Valley City Motor Co.; treasurer, E. H. Kerstetter, Oldsmobile Co.; secretary, Ernest T. Conlon, Pantlind Hotel. Directors—George Beelby, Beelby-Neureither Co.; Paul Gee, Chalmers Motor Car Co.; H. A. Porter, Western Michigan Paige Co.; M. A. Elgin, Kramer-Elgin Co.; F. W. Kehlet, Michigan Tire Co.

The association is at present endeavoring to have removed from the streets certain used-car dealers who sell at the curb. There is an ordinance against standing more than a certain time in one spot, and the used-car men are said to stop until near the limit and then move a short distance. Their cars bear big "for sale" signs. This will benefit the dealers and garagemen in that it will confine the car business to legitimate establishments.

Secretary Conlon also has sent out numerous letters and telegrams opposing the 5 per cent tax on cars, and the organization as a whole is getting behind the "sane business" movement. It will distribute in plain envelopes a statement written by K. P. Drysdale, advertising manager of the Cadillac Motor Car Co., Detroit.

How to Repair Ford Radiator

(Continued from page 35)

After removing the two headers from the core, each tube is tested for leaks, and if leaky, marked.

Providing no greater number than 10 tubes are defective, the radiator may be repaired. Any greater number than 10 makes a new core advisable.

Each of the defective tubes is expanded by the tool, Fig. 4. It is a piece of $\frac{1}{4}$ -in. drill rod, upset at the end, and ground down into a sort of drill. This is run through the leaky tubes.

Then a new radiator tube is shoved through each of these expanded tubes, and the ends sweated to the outside of the old tubes. The radiator is then ready for assembling.

The main precautions to observe in putting the radiator together are to have the surfaces clean, have the iron well tinned, clean and hot, and to use plenty of soldering compound. A little experience should enable any mechanic to do this job well, and at a profit to himself.

Hess-Bright and S K F Draw Closer Together

**Affairs of Both Are to Be Handled
by a New Managing Company—
Stock Now American Owned**

NEW YORK, May 14—In line with plans made last autumn, when New York banking interests, including the National City Bank and Brown Bros., who were previously interested in the S K F Ball Bearing Co., also acquired an interest in the Hess-Bright Manufacturing Co., of Philadelphia, plans have now been perfected for a closer co-operation between these two leading concerns in the ball-bearing industry.

The affairs of the two companies will be administered by a recently formed New York corporation, the S K F Administrative Co. of 1 Wall Street. The board of this company consists of Frank A. Vanderlip, president of the National City Bank; Thatcher Brown, Brown Bros.; F. B. Kirkbride, S. Wingquist, Axel Carlander, Marcus Wallenberg, a well known banker of Sweden, and B. G. Prytz, who as president of the S K F Ball Bearing Co. has been active in bringing about the fusion between his company and the Hess-Bright company. Prytz has been elected president of the Administrative Company.

Simultaneously, Budd D. Gray of the Hess-Bright Company has resigned as president of the Philadelphia company and will become technical adviser to the New York corporation, which will thus have the benefit of his experience in its various interests. At the board meeting of the Hess-Bright company, May 8, B. G. Prytz was elected to succeed Gray as president.

The S K F Administrative Co. is extending the manufacturing facilities of both the Philadelphia and Hartford plants.

The closer co-operation between the two companies was greatly facilitated by the action of the American Hess-Bright stockholders in buying out the German minority interest in the Hess-Bright Co. shortly before the break with Germany, whereby all the stock came into American hands.

St. Louis Accessory Men to Elect Officers

ST. LOUIS, May 14—The nominating committee of the St. Louis Motor Trade Accessory Association has named the following candidates. There will be an election at the June meeting. President, Everett S. Martin, Imperial Oil Co., and G. G. Giese, Panama Rubber & Equipment Co.; vice-president, W. C. Dold, B. F. Goodrich Co., and A. C. Bauer, A. C. Bauer Oil Co.; treasurer, A. R. Baxter, Shurnuff Manufacturing Co., and H. H. Swenson, Fisk Rubber Co.; Robert E. Lee, secretary. Directors—L. E. Allmon, Missouri Auto Specialty Co.; A. C. Cornell, Western Electric Co.; John F. Shuford, Phoenix Auto Supply Co.; William L. Ferrier, Jr., Fred Campbell Auto Sup-

ply Co.; Leonard N. Coats, Commercial Auto Body Co.; T. Frank Wood, Shapleigh Hardware Co.; L. C. Blake, Curtis Pneumatic Machinery Co.; Rudolph Koehler, Evertight Piston Ring Co.; Louis Moller, Jr., Rapp & Moller Carriage Co.; William F. Uhlenhaut, Uhlenhaut Bros. Wagon Co.; W. A. Lippman, Field-Lippmann Piano Stores; George M. Hoffman, Republic Rubber Co. Sergeant at arms—George Schattgen, Fisk Rubber Co.; Wentworth Steele, Mound City Cycle & Auto Co.

Auto Parts Co. Changes Name to Apco

PROVIDENCE, May 14—The Auto Parts Co., manufacturer of a large line of motor car specialties will, on June 1, change its name to Apco Mfg. Co., Inc. The company has been marketing goods under the trade mark Apco for some time. At the same time the capitalization of the company will be increased from \$30,000 to \$200,000.

Ajax Profits Best Yet

NEW YORK, May 12—The Ajax Rubber Co. has declared a quarterly dividend of \$1.50 per share, placing the stock on a \$6 per share per annum basis. The last dividend declared by the company 3 months ago was \$1.25 per share. The dividend is payable June 15 to stock of record May 31. It is stated that earnings of the combined company, including the Racine Rubber Co., for the first quarter of 1917 were far in excess of any other quarter in the history of the organization.

Jersey Plant for Duesenberg

NEW YORK, May 14—The Duesenberg Motors Corp. has filed plans for the construction of a plant in Elizabeth, N. J., for the manufacture of aeroplane engines for the Government. The plant will be in Newark Avenue, and will cost \$200,000. The company has been so rushed with orders that it has been forced to seek larger quarters. It has been occupying temporarily a plant at Edgewater.

Overland Officers Elected

TOLEDO, May 9—The Willys-Overland Co. held a meeting yesterday and elected officers and directors. Edwin Jackson, formerly in charge of the Packard Motor Car Co. in New York, was elected vice-president. All other officers and directors remain the same.

Ten Maxwell Trucks a Day

DETROIT, May 12—The Maxwell Motor Co. is at present shipping its trucks at the rate of about ten a day. This production will be speeded up as soon as additional equipment can be secured.

Philadelphia Battery Doubles Capacity

PHILADELPHIA, May 14—The Philadelphia Storage Battery Co. has just completed a new factory which doubles its capacity. It is considering possible extensions of its business.

Muncie Is Annoyed by Strike of Machinists

**They Tie Up Some Plants in Demand
for More Money and Unionism—
But There Is Hope**

MUNCIE, IND., May 13—Three thousand machinists are on strike in the car and parts plants in this city, demanding a 20 per cent increase in wages, recognition of the machinists' union, time-and-a-half for overtime, an eight-hour day, double pay for Sundays, and the reinstatement of discharged employees who were agitators.

The companies affected are the T. W. Warner Auto Parts Co., the Inter-State Automobile Co., the Warner Gear Co., and the Muncie Gear Co. The strike started in the plant of the T. W. Warner company, Monday evening, May 9, when more than 600 men walked out.

Although a few workmen and the office force remained at work, it was necessary to close the plant. T. W. Warner offered the men a 25 per cent increase in wages, although they asked only 20 per cent. About half of the employees returned to work Saturday with the understanding that the union was not to be recognized. Officials of the company state that all departments of the plant will be in operation this week.

Seven hundred men, mostly machinists, went out at the plant of the Inter-State company. Less than 200 of the strikers had returned to work Saturday.

All the employees of the Warner Gear Co., about 1200 men, went out. Less than 200 of the men had returned Saturday, and no settlement was in sight. The plant of the Muncie Gear Co. is closed, following a walk-out of employees. Officials of the company have refused to discuss a compromise with the men.

The Muncie manufacturers believe they are making headway in meeting the situation. By the end of this week they expect to have their plants in operation. The strikes have resulted in very little disorder. Several hundred of the strikers held a mass meeting and a street parade. There has been no rioting.

Jenkins Increases Capital

ST. LOUIS, May 14—The Jenkins Vulcan Spring Co., which started in a small way five years ago with an initial stock of 100 springs, has just increased its capital from \$60,000 to \$200,000. It is working over time to keep up with orders. The company has branches in Minneapolis, Reading, Pa., Fort Worth and Sumter, S. C.

Amco Goes to Stamford

STAMFORD, CONN., May 14—The Amco Motors Co., maker of motors, has moved from the Loth Mill in Norwalk to the John Davenport Foundry in this city. The two companies were recently merged under the title Springfield Motors Co.

Texas Dealers Expect Record Selling Season

Good Crop Prospects and No Let-up in Registration—Federal Trade Report Is Promising

DALLAS, May 12—With glowing prospects for a good crop year, the Southwest is preparing for another great business season. Texas dealers are predicting, notwithstanding the war, the greatest year and the greatest increase in the use of cars, trucks and tractors that the state has ever had.

The records for automobile licenses issued throughout the state have shown no decrease since the opening of the war. In Dallas county, the record for automobile licenses has been about one hundred per week, a number equal to those before the war. Reports from other county clerks throughout the state say that the number of licenses has not waned in the least. Texas dealers' greatest trouble is in getting cars and it is feared this will be the result throughout the year.

The condition in this state is best told by the report of the Federal Reserve Bank officials for this district. The report estimated that at least one third more land in this district will be planted with food crops and that the campaign for increased food production is meeting with hearty response in this section of the Southwest. Patriotism is running high, the report continued, and the Eleventh district will do its share in providing men, equipment and food.

There is an increased acreage of cotton. The crop is doing well. Rain has aided the wheat crop. The Texas wheat crop is estimated at 25,000,000 bushels and the oat crop at 20,000,000. Texas yearly uses 30,000,000 bushels of wheat and about that many bushels of oats and 200,000,000 bushels of corn. The biggest corn crop ever had is predicted. Prospects are good for a great Texas fruit yield. War conditions have not affected building, which shows progress. Labor conditions are satisfactory, with few unemployed. The live stock industry is in unusually good condition. Post office receipts show big increases. Collections throughout the district are good.

With this excellent condition at this time of the year, it is predicted Texas will make the greatest strides in history. If this is true the sale of automobiles in the Lone Star State will be the biggest it has known thus far.

St. Louis Doble Agency

ST. LOUIS, May 14—The distributing agency for the Doble steam car for the South and Southeast will be located at 1112 Syndicate Trust Building, this city, and will be organized under the name Mid-Western Steam Car Co. The capital and men at the head of the distributing company will be announced later,

the present announcements merely stating that the president will be an experienced automobile man.

Sunday Demonstrations Taboo

PEORIA, ILL., May 12—Members of the Peoria Automobile and Accessories Dealers' Association at a recent business session went on record opposing Sunday demonstrating and in the future they will not give such demonstrations unless the necessity for it can be shown.

Chicago Opposes 5 Per Cent Tax

CHICAGO, May 14—The Chicago Automobile Trade Association is working actively against the 5 per cent tax on cars. It has sent letters to Congressmen as a body and the members have acted individually. Even salesmen have been enlisted in the work and are writing letters.

Anderson Offers Plant

SAVANNAH, GA., May 12—John G. Anderson of Rock Hill, S. C., is in Washington and has tendered the Government the use of his entire buggy, wagon and automobile making establishment for its use on a 10 per cent basis.

Giant Tire Buys Another

FINDLAY, OHIO, May 14—The Giant Tire & Rubber Co., Akron, has purchased the Toledo-Findlay Tire & Rubber Co. in this city and paid for it \$27,000. The sale was consummated by the receiver, A. T. Spittler. Operation of the plant will begin within the next 10 days and a large force of workmen put to work. The officers of the company are: C. E. Hart, president; D. E. Reynolds, vice-president; and J. E. Schaffer, secretary and treasurer. With the above officers and I. J. Cooper, of Cincinnati, two more directors will be elected from this city.

Thurber Passes Away

NEW YORK, May 10—G. N. Thurber vice-president of the Isotta-Fraschini Motors Co., died last Sunday from chronic heart trouble. For many months he had been suffering acutely, but stuck to his work. A short time ago he was forced to give up and take a rest. No longer keyed up to working pitch he rapidly declined. While young in years, only 31, he was old in the automobile business. He began as export agent for an American firm, with headquarters in Paris. Later he was associated with Smith & Mabley, Chicago, distributor of the Simplex, Renault and various other high-grade cars; then he was sales manager for Quinby & Co., body builders, later taking charge of their New York showroom and selling the Isotta. Finally he took over the agency for the Isotta, forming the company of which he was vice-president. The company also handles the Scripps-Booth. He was also president of the T. V. T. Motors Corp., Washington, distributor of the Scripps-Booth and Marmon.

Samuel L. Smith Dead; Founded Detroit Trade

Man Who Started Olds, Leland and Dodge Brothers Passes Away at 87—His Important Career

DETROIT, May 9—Samuel L. Smith, founder of the motor car industry in Detroit, died yesterday at the age of 87 years. Mr. Smith established the Oldsmobile Co. 16 years ago in Detroit, and was the first manufacturer to produce thousands of motor cars annually. He was the discoverer and explorer of the commercial possibilities of the automobile, and he had the courage to spend millions of dollars on the industry in the earliest days, when all others were dubious of its future.

In 1902 he produced 4000 motor cars, with a net profit of \$210 per car, and astounded the industrial world.

Practically all of the leaders of the industry to-day were affiliated with or were given their first impetus by the original Oldsmobile Co.

Henry Leland, who now is president of the Cadillac Motor Car Co., secured a powerful start when as the head of the Leland Falkner Machine Co. he received a large order for motors from the Oldsmobile Co. Dodge Brothers practically owe the start of their business to an order for 2000 transmissions placed with them by the Oldsmobile Co. Following are individuals now prominent in the industry who commenced their climb as unimportant members of the original company founded by Mr. Smith. R. E. Olds, founder of the Reo Motor Car Co.; J. D. Maxwell, founder of the Maxwell Motor Co.; W. F. Metzger, one of the original incorporators of the E-M-F Co.; Roy Chapin, Howard E. Coffin and R. B. Jackson of the Hudson Motor Car Co.; C. D. Hastings and R. C. Hupp of the Hupmobile Co.; James F. Bourquin of the Paige Motor Car Co.; Percy Owen of the Liberty Motor Car Co., and J. E. Bayerline and W. L. Daly of Columbia. Smith was born in 1830 in Michigan. He made millions in timber and lumber and shipping enterprises, and was one of the developers of the Calumet and Hecla copper properties.

Under A B C License

DETROIT, May 12—The Brush Brothers Engineering Co. has secured the right to use the three-point drive by belt around crank shaft, gear and fan in some of its designs. The patent is owned by Alexander Churchward, president of the A B C Starter Co.

New Moline Company in Philadelphia

PHILADELPHIA, May 14—The Moline Knight Sales Co., 325 Broad Street, has been succeeded by the Moline Knight Motor Sales Co. C. Harold Marston is vice-president and general manager and the new company has located at 511 N. Broad Street. Marston has been affiliated with the Daimler in England and Charles Y. Knight.

Ford Tractor Design Now in Final Stages

**Four-Cylinder Engine, Three-Speed
Selective Gearset and Worm Axle
in Unit—Pulls Two Plows**

DETROIT, May 12—Considerable mystery has enveloped the Ford tractor and it appears at present that so far as manufacture is concerned, as much, if not more, has been done toward the development of European production as of American.

The design, however, is definitely in the final stage. There is one main unit, this comprising the four-cylinder engine, three-speed transmission and worm drive rear axle. The radiator is carried on a forward extension of the crankcase, immediately beneath which is a pivot attached to the center of the front axle which is of the automobile type.

As to the capacity of the machine, a British report states that the experimental machines, of which a number have been shipped, are mostly drawing two plows, the furrow varying in depth from 9 to 11 in., and that the rate of operation averages 3 hr. to the acre. On some of the experimental machines the Holley kerosene carbureter, described in *Motor World* for May 3, is being used.

Designed much along the lines of the model T, the engine is very much larger and in every way more substantial. The crankshaft has a wide center bearing and the transmission is proportionately bigger than the Ford car gearset. Thermosiphon circulation is used and the radiator is a massive truck pattern with cast tanks. The engine is 4 x 5 in. and has the regular flywheel magneto for ignition. The transmission is quite different from the Ford system, none of the three forward speeds being direct. A disk clutch is used and the three ratios are obtained through spur gears controlled by a shift lever of the conventional kind. Overall dimensions are: length 8 ft., height 4 ft. 6 in. and width 5 ft. 6 in.

Peoria Tractor Show Sept. 18-29

PEORIA, ILL., May 5—With the merging of the Peoria Exposition with the International Farm Congress and Soils Exposition for 1917 it is expected that Peoria will have one of the largest displays of farm tractors, implements, machinery and automobiles held this year. The dates are Sept. 18 to 29. Tractor demonstrations are to be held in connection with the show.

Metz Makes Changes

WALTHAM, MASS., May 11—The Metz Co. has made a number of changes and promotions in its sales organization. Edwin Metz, who has been retail sales manager for this district, was promoted to assistant to the president of the company, his father, C. H. Metz. E. L. Bunker, Maine manager, will head the local sales, with C. I. Pickens, son of

General Sales Manager R. A. Pickens, as office manager of the retail branch. The Maine territory will henceforth be in charge of A. S. Rowe, who comes from the managership of the western Pennsylvania district. J. V. Gormley, State manager of Georgia, has been recalled to the factory, and will be connected with the local retail branch. J. B. Ramm, formerly at Birmingham, Ala., as State manager for that district, will handle both Georgia and Alabama in the future.

Skilled Factory Workers Won't Be Drafted

DETROIT, May 11—Word has been received from Washington that a special section will be left in the selective draft bill now being prepared by the Senate and House committees for the President's signature which will exclude from field service those workmen who, on account of their mechanical skill, will be of greater value in the manufacture of aeroplanes, motor trucks and munitions of war.

Lamson Truck Won't Move

MILWAUKEE, May 12—A report from Wausau, Wis., says that the Lamson Truck & Tractor Co., Chicago, probably will not move its plant and headquarters to Wausau on July 1, as arranged for some time ago, because of a disagreement with the local committee on organization over the distribution of stock and control. The Wausau committee had gone so far as to organize a factory company, with \$50,000 capital, and engaged an architect to prepare plans for a motor truck and tractor factory of model design, to be ready for occupancy about mid-summer. The common council had provided a free factory site and contracts for construction work were about to be let when the disagreement arose.

Rie-Nie Is Not German

Editor *Motor World*: We have advertised in your publication an article named Rie Nie German Radiator Compound. Since the outbreak of hostilities with that country we have received many inquiries asking whether the sale of that product directly benefited the enemy.

The name of this article was chosen 6 or 7 years ago, when it was first introduced on the market, and at a time when nobody could foresee the present unfortunate circumstances.

The Durkee-Atwood Co. would greatly appreciate it if you would give editorial mention to the fact that they are strictly an American concern, that their sale of Radiator Compound in no way benefits the enemy, and that as soon as the present stock of Rie Nie German Radiator Compound cans are sold and used, the name will be changed to Rie Nie Radiator Compound.—Durkee-Atwood Co., W. F. Potter, Minneapolis.

Rubber Men Fighting Double Tire Taxation

**Object to 10% Import Tax on Rubber
and Additional 5% on Sales Price
of Tires—Rubber Situation**

NEW YORK, May 12—The Rubber Association of America, through its legislative committee, is leading the opposition to the war tax measure which places two taxes on tires and inner tubes. There is a 5 per cent tax to be paid by the manufacturer on the selling price of tires and tubes to dealers. There is also a flat import duty of 10 per cent on crude rubber imported.

Heretofore crude rubber has been on the free list, but the action of the Ways and Means Committee in making an arbitrary import tax of 10 per cent on all free list articles places a double war tax on the rubber industry, in addition to the many other taxes which will fall on the industry, such as excess profits, corporation tax, income tax, freight, express, etc. The Rubber Association hopes that at least the 10 per cent import tax will be removed. There is no crude rubber raised in this country. Rubber is one of the great essentials of war. Because of this it is hoped to get this tax removed.

During the fiscal year ending Dec. 31, 1916, there were 115,000 tons of crude rubber imported. This figure represents long tons or 2240 lb. Crude has averaged 80 cents per lb. The present duty will be an ad valorem tax, which would make it difficult to calculate, and if such a tax eventually goes through the rubber importers would prefer something specific rather than an ad valorem one.

Record Business for Fisk

CHICOPEE FALLS, MASS., May 12—The Fisk Rubber Co. has started to produce a record volume of business for 1917. Net profits in the March quarter are understood to have been sufficient to cover the entire year's 7 per cent dividend on the two issues of first preferred aggregating \$9,400,000. In addition, there was a substantial balance left toward the dividend on the \$4,500,000 second preferred. Earnings of more than \$3,000,000 net in 1917 are expected. These are compared with actual profits of \$1,836,829 in the fiscal year ending Dec. 31 last.

Potatoes for Sheephead

NEW YORK, May 14—The big acreage circled by the 2-mile track at the Sheephead Bay Speedway will soon be planted with potatoes. This plan was made known to-day by Harry S. Harkness, president of the Sheephead Bay Speedway Corp., who recently acquired possession of the property.

MOTOR WORLD

Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

A Summary of Used Car Sales Conditions

Conditions in general have been slightly better during the week gone by. Weather has been more seasonable in all sections and with the sun shining prospects have lost much of their timidity. Dealers report an increasing number of inquiries and sales have been more numerous. From a number of sections there are reports that dealers are attempting to get away from trading cars.

Denver, May 12—The majority of dealers report the number of used car sales for the last week below normal, and several charge the slump to bad weather. As this condition included a heavy snowstorm over a large part of Colorado, however, with extra wet snow 4 or 5 in. deep in an extensive area of dry farming territory, no dealer complained about the few days of slack business. Two or three made favorable showings and others reported no used cars on hand, but said they did a favorable amount of new business before the storm struck. One made good his prediction of a week ago that he would close some prospective sales as soon as he got cars into shape to sell, and showed 7 sales for the week, as against none the week before.

Kansas City, May 12—In some cases used car sales had increased the past week, but as a rule there was little doing. The weather had been inclement for several days, and the sunshine had not yet had a chance to warm up the purchasers. Most dealers are sanguine of good trade this spring, however, and are only waiting for it to open up.

Louisville, May 12—Continued inclement weather again curtailed the sales of used cars during the past week. Only a few dealers reported sales.

Albany, May 12—Business took a sprint during the week, and with one good bright day the sales of used cars took an upward tendency. Dealers insist the only reason why more sales have not been made is because of bad weather. With the exception of one day it has rained steadily. The majority of the cars sold during the week went to farmers living in the territory a few miles out of the city.

Hartford, May 12—There has been little change in the used car market in the past week. The weather has held cold and raw, which has had a deterrent effect. The tendency to clean up and stay clean has gained ground, and it would not be at all surprising if more of the leading dealers passed up trades altogether, as is already done in one or two instances. Stock has been reduced materially in the big houses. Prices are holding up well.

Philadelphia, May 12—No improvement

was noted in the used car market this week, although some dealers believe the war element is no longer a part of conditions. Poor business is attributed to the weather, which has been such as to discourage any tendency to buy. Philadelphia enjoyed the distinction of seeing the sun but once in 6 days. Dealers report plenty of inquiries but no sales.

Baltimore, May 12—Business was better during the past week than for some time. Dealers found buyers in better mood and sales were reported to be more easily made. The first part of the week weather conditions favored rural trade and aroused the buyers to close deals. Aside from deals made quite a few prospects were developed, and dealers in several instances aided others to dispose of cars which were sought of them and which were held by others. From Philadelphia and New York car jobbers came during the week and bought several score of cars.

Indianapolis, May 12—Better weather conditions have brought some improvement in used car business during the last week, although dealers still complain that cars are not being moved as rapidly as they should. Dealers say frankly that cars are not bringing high prices, but hope that conditions will improve when good motoring weather arrives. Many cars are being offered for sale at low prices, and a few dealers who are overstocked report that they have refused to buy several good bargains during the last week.

Detroit, May 12—Used car sales have been fairly brisk, especially in the small light cars. However, sales are below normal. The receipts of used cars have been few, doubtless because owners are being conservative, due to the unsettled times. Many dealers predict a slight increase in used car prices, though the prices at present, excepting the Ford, are constant. The value of used Fords has increased about \$35.

Savannah, May 12—Sales of used cars for the week past have been well above the average for the past few weeks. Dealers generally attribute this to the fact that the people have again about settled down into the even tenor of their ways after the first scare caused by the declaration of war. All dealers are optimistic regarding future sales,

but are somewhat fearful regarding deliveries from factories. Several have already experienced trouble in this respect.

Milwaukee, May 12—This has been a rather quiet week in the used car market, due to the fact that only two weeks have passed since the Used Car Show conducted by the Milwaukee Automobile Dealers, Inc., which cleaned up second-hand car stocks in great shape. Transactions during the past week show the effects of the Used Car Show in that excellent prices have been obtainable. The show established values to an important degree, and has made dealers more firm in insisting upon good prices on resales. New car business is well maintained, and while the number of cars taken in trade shows neither a drop nor a rise, allowances are fixed by dealers with a great deal more certainty and firmness than formerly, inasmuch as the resale values are more firmly established.

Fargo, N. D., May 12—This week six dealers report that they have sold neither old nor new cars, and they seem to feel that prospective conscription has hurt their sales. Increased tire and fuel cost is another factor which they mention.

St. Louis, May 12—The demand for used cars continues rather brisk and more sales were made than for two weeks. The inquiry for light, low-priced cars is exceedingly strong, and prices are being quoted higher on any car that can be sold for less than \$350.

Omaha, May 12—With more than a week of continual rain and cold, used car sales here were again low, but dealers report few cars on hand to sell, even if there had been a demand. The first of this week broke clear and warm, and confidence pervades the entire row. Dealers in new cars out in the State were active in the city to-day arranging for deliveries as soon as roads are passable, and used-car prospects are expected in numbers at once. It appears from a census of the row, however, that the stock of used cars on hand is not large. The immense benefit to crops by the heavy rainfall of the past week is expected to add further stimulus to the trade. Several dealers say they could sell small used cars, but have only more expensive makes on hand.

THE prices given in MOTOR WORLD USED CAR PRICE RECORD are re-sale prices—not allowances or appraisals. *They are the prices that dealers have realized.*

It is important to bear this in mind when using the Record as a basis for appraisals and allowances. It means, in fact, that in every case these cars were taken in at from \$75 to \$100 less than the re-sale price quoted.

Always deduct at least \$75 as a basis for allowances. The amount it costs to put a car in a salable condition varies. In some cases it may be as little as \$10 and in others where a complete overhaul is done it may be more than \$100. In any case, overhead must be considered, storage, light, heat, sales commissions, etc. All of these factors make a deduction of at least \$75 imperative.

THE figures in the tables are the prices brought by used cars sold during the past week. Most sales are quoted "As is." Where an asterisk (*) follows the price, it signifies the car has been overhauled; two asterisks (**) signify partial overhaul. Where more than one sale of a particular model has been reported the prices have been averaged.

Albany					Bridgeport					BROOKLYN—Continued					Denver—Continued				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—					DODGE—					SAXON—					CADILLAC—				
4	1917	800	....	....	....	1916	†650	....	....	S2	1916	500	....	....	53	1916	....	*1625	....
CADILLAC—					PACKARD—					14	1916	....	....	275	51	1915	....	*1300	....
51	1915	....	1150	....	125	1916	....	....	**1800	S	1915	375	....	....	....	1914	*700	....	....
....	1914	700	....	....	....	1912	600	....	....	14	1915	....	....	225	....	1911	350	....	....
CHALMERS—					STUDEBAKER—					STUDEBAKER—					CHALMERS—				
....	1912	275	....	....	16-4	1916	....	**600	....	17-6	1916	....	600	....	18	1913	....	150	....
CHANDLER—					16-6	1916	....	**700	....	17-4	1916	....	500	....	CHEVROLET—				
....	1915	....	900	....	4	1915	**450	....	....	6	1915	....	450	....	490	1916	*463	....	....
CHEVROLET—					†Two bodies.					4	1915	....	400	....	H2	1914	*350	....	....
H4	1916	500	....	400	Brooklyn					Columbus					DODGE—				
H4	1915	450	....	....	Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	....	1916	640	....	....
HAYNES—					BRISCOE—					BUICK—					....	1915	*550	....	....
34	1916	1075	....	....	....	1916	425	....	....	R45	1916	*725	....	....	GRANT—				
HOLLIER—					4-25	1915	250	....	....	B36	1915	....	....	525	MAXWELL—				
....	1916	550	....	....	BUICK—					C25	1915	500	....	....	25	1916	*450	....	....
MAXWELL—					D45	1917	850	....	....	....	1914	300	....	....	METZ—				
25	1916	375	....	....	D45	1916	650	....	....	CHALMERS—					....	1915	....	*250	....
OLDSMOBILE—					C37	1915	500	....	....	MS	1914	600	....	....	OLDSMOBILE—				
....	1916	850	....	....	C36	1915	400	....	....	26A	1914	*600	....	....	42	1915	500	....	....
OVERLAND—					CADILLAC—					CHEVROLET—					OVERLAND—				
83	1916	....	600	....	53	1916	....	*1600	....	H2	1915	440	....	....	83	1916	*515	....	....
75B	1916	300	....	....	....	1915	....	850	....	....	1916	557	....	....	75	1916	*515	....	*440
79	1914	....	....	300	CHALMERS—					DODGE—					79	1914	345	....	....
PACKARD—					35A	1916	675	....	....	....	1916	557	....	....	SAXON—				
135	1916	....	2300	....	32B	1916	....	500	....	HUDSON—					S2	1916	575	....	....
48	1913	....	700	....	26	1915	450	....	....	SS	1916	....	*1350	....	STUDEBAKER—				
REO—					32	1915	550	....	....	6-40	1914	....	*750	....	17-6	1917	....	*850	....
R	1915	*550	....	....	CHEVROLET—					MAXWELL—					4	1916	....	*625	....
STUDEBAKER—					H2	1916	525	....	550	....	1916	337	....	....	Des Moines				
17-6	1916	....	†750	....	H2	1915	400	....	450	....	25	1916	*425	....	Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
17-4	1916	....	700	....	....	1915	475	....	....	....	1915	*325	....	....	BUICK—				
30	1910	150	....	....	DODGE—					OAKLAND—					B36	1914	500	....	....
WILLIS-KNIGHT—					....	1915	575	....	....	32B	1916	*575	....	....	B5	1914	....	....	325
84	1916	600	....	....	....	1915	475	....	....	OVERLAND—					53	1916	....	*1600	....
†3-passenger.					FRANKLIN—					80	1916	500	....	....	....	1912	*550	....	....
Austin					....	1916	1500	....	....	75	1916	595	....	....	CADILLAC—				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	....	1915	950	....	....	83	1916	325	....	....	53	1916	....	*1600	....
BUICK—					....	1914	650	....	....	69	1913	240	....	....	....	1912	*550	....	....
....	1917	900	....	....	GRANT—					REGAL—					CHALMERS—				
DODGE—					....	1915	500	....	....	....	1913	300	....	....	6-34	1916	800	....	....
....	1916	600	....	....	HAYNES—					SAXON—					26A	1914	550	....	....
OVERLAND—					....	1915	650	....	....	S2	1916	*600	....	....	....	1913	500	....	....
....	1914	450	....	....	....	1914	400	....	....	....	1914	....	125	....	CHEVROLET—				
....	1912	....	....	200	HUDSON—					STUDEBAKER—					H4	1916	375	....	....
STUDEBAKER—					SS	1916	....	1100	....	....	1915	425	....	....	DODGE—				
....	1913	....	450	....	6-40	1915	....	600	....	....	....	1913	*350	....	....	1915	525	....	....
Baltimore					HUPMOBILE—					Dallas					JEFFERY—				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	N	1916	*870	....	....	Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr	4	1916	500	....	....
BUICK—					K	1915	*525	....	....	....	1915	....	....	....	6	1916	650	....	....
....	1913	215	....	....	H	1914	*1450	....	....	....	....	....	....	....	4	1915	325	....	....
CADILLAC—					JEFFERY—					CHALMERS—					....	1916	875	....	....
....	1912	250	....	....	4	1916	500	....	....	....	1915	....	....	....	43	1916	675	....	....
CHALMERS—					6	1915	325	....	....	COLE—					OVERLAND—				
....	1913	250	....	....	OAKLAND—					....	1914	*350	....	....	83	1916	425	....	....
CHANDLER—					32B	1916	550	....	....	HUDSON—					75	1916	387	....	....
....	1917	....	1050	....	8	1916	800	....	....	SS	1916	....	1000	....	81	1915	350	....	....
....	1915	500	....	....	OLDSMOBILE—					....	1913	550	....	....	79	1914	300	....	....
DODGE—					43	1916	400	....	....	OAKLAND—					PAIGE—				
....	1916	511	....	....	44	1916	1000	....	....	....	1915	....	*550	....	6-36	1914	375	....	....
....	1915	500	....	....	OVERLAND—					OLDSMOBILE—					SAXON—				
HUDSON—					83A	1916	350	....	....	4	1916	1000	....	....	S2	1916	550	....	....
....	1912	200	....	....	83B	1916	412	....	....	OVERLAND—					STODDARD-DAYTON—				
OAKLAND—					75A	1916	367	....	....	83	1916	*700	....	....	....	1912	100	....	....
....	1915	....	....	....	75b	1916	412	....	....	....	1913	*250	....	....			

DETROIT—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
DODGE—				
1917	*575	....	....	....
1916	*490	....	....	....
1915	*375	....	....	....
DORT—				
1916	*450	....	....	....
HUDSON—				
SS 1916	....	*1100	....	....
6-40 1916	....	*1000	....	....
6-40 1914	....	500	....	....
HUPMOBILE—				
32 1914	250	....	....	....
KING—				
E 1916	800	....	....	....
D 1915	500	....	....	....
LIBERTY—				
1917	800	....	....	....
MAXWELL—				
25 1916	*400	....	....	....
MITCHELL—				
D2-40 1917	....	*900	....	....
6-16 1916	....	*750	....	....
A2-50 1914	*370	....	....	....
OAKLAND—				
32 1916	*450	....	....	....
OLDSMOBILE—				
43 1916	*800	....	....	....
OVERLAND—				
83 1916	350	....	....	....
86 1916	....	*650	....	....
80 1915	400	....	....	....
1913	....	150	....	....
PAIGE—				
6-46 1916	....	*825	....	....
4-36 1915	*350	....	....	....
4-35 1914	275	....	....	....
4-36 1913	250	....	....	....
REO—				
R 1916	550	....	....	....
6 1916	....	*675	....	....
r 1915	*400	....	....	....
SAXON—				
S2 1917	650	....	....	....
S2 1916	575	....	....	....
4 1916	....	*275	....	....
STUDEBAKER—				
17-6 1916	....	*600	....	....
6 1915	450	....	....	....
4 1915	200	....	....	....
6 1914	*375	....	....	....

Duluth

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
4 1915	500	....	....	....
CADILLAC—				
1913	....	500	....	....
COLE—				
8 1915	....	900	....	....
1914	550	....	....	....
DODGE—				
1915	*700	....	....	....
OVERLAND—				
1914	....	350	....	....
PREMIER—				
1912	550	....	....	....
†Two bodies.				

Hartford

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45 1916	800	....	....	....
CADILLAC—				
1913	*600	....	....	....
CHEVROLET—				
490 1916	350	....	....	....
COLE—				
1914	....	375	....	....
FRANKLIN—				
1916	1400	....	....	....
MAXWELL—				
1917	475	....	....	....
METZ—				
1916	400	....	....	....
1915	350	....	....	....
MITCHELL—				
1915	....	500	....	....
NATIONAL—				
AC 1916	....	900	....	....
1911	....	300	....	....
OAKLAND—				
34 1917	800	....	....	....
32 1916	600	....	....	....
OLDSMOBILE—				
1910	150	....	....	....
OVERLAND—				
75 1916	475	....	....	....
1914	275	....	....	....
REO—				
4 1916	600	....	....	....
4 1915	*500	....	....	....
4 1914	350	....	....	....
4 1912	225	....	....	....
SAXON—				
S 1915	*450	....	....	....
SCRIPPS-BOOTH—				
1915	....	300	....	....

HARTFORD—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
STUDEBAKER—				
17-8 1917	....	850	....	....
VELIE—				
22 1916	800	....	....	....

Indianapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
B25 1914	*350	....	....	....
CADILLAC—				
1914	*500	....	....	....
CHEVROLET—				
490 1916	*450	....	....	....
COLE—				
1916	....	1350	....	....
6-60 1914	*650	....	....	....
4-40 1913	*380	....	....	....
DETROITER—				
1912	150	....	....	....
DODGE—				
1917	700	....	....	....
1916	650	....	....	....
1915	575	....	....	....
EMPIRE—				
1915	....	*350	....	....
1912	225	....	....	....
MARION—				
1914	*300	....	....	....
METZ—				
1917	350	....	....	....
MITCHELL—				
B6-45 1915	*350	....	....	....
OAKLAND—				
1915	....	*350	....	....
OVERLAND—				
80 1915	*425	....	....	....
PREMIER—				
1914	....	300	....	....
REO—				
R 1914	*425	....	....	....

Kansas City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CADILLAC—				
51 1915	....	*1250	....	....
1913	....	*525	....	....
CHALMERS—				
35A 1916	*875	....	....	....
DODGE—				
1915	550	....	....	....
FRANKLIN—				
1912	*765	....	....	....
1916	1500	....	....	....
HUDSON—				
SS 1916	....	1400	....	....
6-40 1915	....	650	....	....
HUPMOBILE—				
K 1915	550	....	....	....
MAXWELL—				
1916	437	....	....	....
OAKLAND—				
32 1916	600	....	....	....
1914	450	....	....	....
OVERLAND—				
83 1916	500	....	....	....
75 1916	*450	....	....	....
79 1913	*400	....	....	....
PAIGE—				
6-46 1916	....	850	....	....
4 1914	....	*350	....	....
REO—				
1912	*250	....	....	....
SAXON—				
S2 1916	....	700	....	....
S 1915	400	....	....	....
STUDEBAKER—				
17-6 1917	....	825	....	....
16-4 1916	....	500	....	....
WHITE—				
6 1914	....	500	....	....
WILLYS-KNIGHT—				
84 1916	*850	....	....	....

Louisville

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45 1916	700	....	....	....
CHANDLER—				
1916	....	850	....	....
DODGE—				
1915	650	....	....	....
HUPMOBILE—				
1914	....	475	....	....
HUDSON—				
6-40 1915	....	750	....	....
30 1912	275	....	....	....
MARMON—				
1912	200	....	....	....
PACKARD—				
18 1912	174	....	....	....
REO—				
S 1917	....	1850	....	....
†Three-passenger.				

Milwaukee

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
ABBOTT-DETROIT—				
1914	375	....	....	....
BUICK—				
D45 1916	*750	....	....	....
CHEVROLET—				
H2 1915	....	425	....	....
DODGE—				
1916	*550	....	....	....
HUDSON—				
ES 1916	....	*1250	....	....
JEFFERY—				
J6 1914	....	550	....	....
6 1915	....	†700	....	....
MITCHELL—				
5-35 1915	500	....	....	....
6 1914	300	....	....	....
OVERLAND—				
1913	175	....	....	....
PACKARD—				
30 1910	....	275	....	....
REO—				
S 1916	....	†600	....	....
STUDEBAKER—				
4 1914	425	....	....	....
SUN—				
1916	700	....	....	....
WHITE—				
6 1914	....	725	....	....
†Three-passenger.				

Minneapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45	1917	800	....	....
B37	1914	400	....	....
CADILLAC—				
53	1916	....	1650	....
51	1915	....	1330	....
....	1914	....	....	750
....	1913	....	500	....
CHALMERS—				
6-30	1916	**775	....	....
6-40	1916	....	675	....
36	1912	....	....	250
CHEVROLET—				
H2	1915	425	....	....
....	1914	250	....	....
DODGE—				
....	1916	550	....	**600
....	1915	**575	....	....
HUPMOBILE—				
M	1916	**1000	....	....
K	1915	600	....	....
JEFFERY—				
6	1915	500	....	....
MAXWELL—				
....	1916	475	....	....
MITCHELL—				
C7-42	1916	....	850	....
....	1914	....	300	....
OAKLAND—				
49	1915	....	*550	....
....	1913	300	....	....
OVERLAND—				
83	1916	*550	....	....
....	1914	*300	....	....
....	1912	100	....	....
SAXON—				
14	1916	....	....	275
A	1914	....	....	150
STUDEBAKER—				
16-4	1916	....	650	....
6	1915	....	600	....
4	1915	....	....	375

PITTSBURGH—Continued				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
OVERLAND—				
86	1916	....	*800	....
83	1916	....	425	....
81	1915	....	300	....
79	1914	....	....	**300
PULLMAN—				
4-24	1916	**450	....	....
REO—				
M	1917	....	1110	....
4	1915	....	400	....
STUDEBAKER—				
1913	....	....	300	....
†Three-passenger.				

Providence				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CADILLAC—				
53	1916	....	*1650	....
51	1915	....	*1200	....
CHEVROLET—				
H4	1916	360	....	....
MAXWELL—				
25	1917	500	....	....
STUDEBAKER—				
17-6	1917	....	....	†760
17-4	1916	....	700	....
16-4	1916	....	600	....
†Three-passenger.				

St. Louis				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
....	1912	300	....	....
CADILLAC—				
51	1915	....	*1200	....
....	1914	....	*700	....
CHALMERS—				
....	1914	....	*750	....
DODGE—				
....	1916	....	*625	....
FRANKLIN—				
8	1916	....	....	*1300
HUDSON—				
6-54	1915	....	*1000	....
6-40	1914	....	*775	....
....	1913	....	*550	....

ST. LOUIS—Continued				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
LOZIER—				
....	1911	150	....	....
OLDSMOBILE—				
43	1916	*750	....	....
42	1915	*550	....	....
PAIGE—				
4-36	1915	*500	....	....
REO—				
S	1916	....	*800	....
4	1914	*450	....	....
SAXON—				
....	1915	....	....	350
S	1916	....	....	*400
STUDEBAKER—				
4	1915	*650	....	....
....	1913	*450	....	....
....	1912	*150	....	....
VELIE—				
....	1916	*750	....	....

San Francisco				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D35	1917	*650	....	....
D44	1916	*1000	....	*975
C25	1915	500	....	....
B25	1914	375	....	....
CHEVROLET—				
H2½	1915	....	....	600
H2	1915	350	....	....
DODGE—				
....	1917	*675	....	....
....	1916	....	....	*600
....	1915	*450	....	....
GRANT—				
....	1917	....	....	625
HOLLIER—				
8	1916	400	....	....
HUDSON—				
SS	1917	....	*1600	....
6-40	1916	....	*800	....
54	1913	400	....	....
LOZIER—				
....	1914	700	....	....
MAXWELL—				
....	1916	*450	....	....

SAN FRANCISCO—Continued				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
MITCHELL—				
....	1911	60	....	....
OVERLAND—				
84	1916	*800	....	....
83	1916	*600	....	....
69	1915	....	....	300
79	1914	*400	....	....
69	1913	250	....	....
SAXON—				
S2	1916	*650	....	....
STUDEBAKER—				
17-6	1916	....	900	....
WINTON—				
....	1913	300	....	....

Savannah				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
COLE—				
....	1914	400	....	....
HUDSON—				
....	1914	....	*850	....
MAXWELL—				
....	1914	250	....	....
STUDEBAKER—				
....	1912	200	....	....

Seattle				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
ABBOTT-DETROIT—				
6-44	1916	....	*1000	....
APPERSON—				
....	1914	*525	....	....
BUICK—				
D35	1917	....	775	....
D44	1916	....	875	....
C37	1915	750	....	....
CADILLAC—				
51	1915	....	*1550	....
....	1915	....	*850	....
CHALMERS—				
....	1914	....	*550	....
CHANDLER—				
....	1916	....	....	†1410

SEATTLE—Continued				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CHEVROLET—				
490	1916	437	....	....
DODGE—				
....	1917	750	....	....
FRANKLIN—				
....	1914	*1375	....	....
HUPMOBILE—				
....	1911	....	....	150
INTER-STATE—				
....	1912	....	88	....
MAXWELL—				
....	1917	700	....	....
....	1916	*600	....	....
....	1915	*450	....	....
METZ—				
....	1916	*550	....	....
....	1915	*325	....	....
OAKLAND—				
32	1916	*600	....	....
32B	1916	*687	....	....
OVERLAND—				
83	1916	....	....	*550
75	1916	*550	....	....
80	1915	*550	....	....
81	1915	*450	....	....
PULLMAN—				
4-24	1915	350	....	....
REO—				
4	1914	*350	....	....
SCRIPPS-BOOTH—				
....	1916	....	....	800
STUDEBAKER—				
4	1915	....	600	....
6	1914	....	*600	....

South Bend				
Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
AUBURN—				
....	1915	450	....	....
BUICK—				
C54	1915	....	....	800
FRANKLIN—				
....	1912	....	....	250
REGAL—				
....	1912	....	....	250

Making The Owner "Sell" His Old Car

A NEW angle on the usually-taboo method of owners "selling" used cars to the dealer is provided by the Hudson-Brace Motor Co., Kansas City.

In this establishment not only does the customer have to "sell" his car, turned in on exchange—but he has to guarantee it!

"Since we are buying his car, we are in exactly the same position to him that he is to us when we sell him our car."

This is the attitude of the firm, as expressed by C. M. Woodward, manager of the used-car department. And he makes the customer see it. The used car has to be as represented, or the seller has to make good.

"Why should the customer expect to put anything over on the dealer and get away with it?" Woodward asks. "We assume that the customer is quite as straightforward in his sale to us as we are in our sale to him. If he finds something wrong with the car we sell, he comes back at us—and we make good. It certainly is only fair that we should be protected quite as fully.

"Buying a new car is not a gamble. The customer knows what he is getting, partly from his trial of the car, and in the demonstration; partly from the reputation of the car and our statements.

"Why should there be a gamble on our part, then, in taking his used car? That wouldn't be good business. The

customers see the point.

"We don't profess to be able to out-guess the customer as to the value of his used car."

The system has worked out beautifully in practice. No Hudson owner who bought from this company is chortling with glee over having put one over in the allowance on his used car. The Hudson-Brace company has no customer on its books to whom it has begrudged service.

Here's a typical—a composite—instance of how the system works.

John Jones comes in with a Zimpoof used car, vintage of 1915, to buy a Hudson Super-six, the salesman having got him strongly into the notion. Woodward looks over the Zimpoof, estimates the cost of repainting, gets in and drives around the block, performs a clinical investigation, estimates the cost of replacing certain parts, asks a few questions. He knows what he can sell the car for, deducts the costs of overhauling and a small leeway, and offers the net to the customer for the used car. This figure is final. The customer makes the deal (after perhaps some more "selling" by the salesman) and drives away in his Hudson.

Two or three days later a used-car salesman takes the Zimpoof out for a demonstration to a customer. The starter refuses to work. Investigation

discloses the real condition of the batteries, the battery man estimating the cost of putting it into condition to run at \$35.

Woodward gets in touch with the former Zimpoof owner. Here is about what happens:

"The battery in the car you sold me was on the bum," he says.

"Was it?" the former owner responds.

"You knew it—you couldn't help knowing it."

"Well—it wasn't working very well."

"You are getting the right kind of service, as we represented, out of your Hudson, aren't you? You'd expect us to stand back of that, wouldn't you?"

"Sure! But a used car is a different proposition. It's sold 'as is.'"

"You know in your heart that you were hoping we wouldn't discover the condition of the battery until after the sale was consummated—fess up, now—isn't that true? Haven't we got something coming to us?"

"I guess you're right—I don't want to be in the position of being guilty of sharp practice. I'll send a check to the battery station."

"That's the stuff! And drive up and let us look over your new car."

The Hudson-Brace Motor Co. does not figure to make money on its used-car department. It happens, however, that the department does show a net profit.

Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearbox	Wheels	Tires	Rims	2-Door	4-Door	Coupe	Sedan	Limousine	Detachable Top
ABBOTT 6-44 6-40	6-31x44 25.3 Remy 6-31x44 29.4 Remy	1195 1595	2100 2150	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595	1195 1595
ALLEN Classic	4-31x5 22.5 Weths	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
AMERICAN-SIX A	6-3 x5 21.6 G & D	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
ANDERSON 40	6-31x44 25.4 Weths	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
APPELSON 6-17	6-31x5 29.4 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
6-17	8-31x5 31.2 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
AUBURN 6-40	6-31x5 29.4 Weths	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
6-39	6-31x5 23.4 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
6-44	6-31x5 29.4 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
AUSTIN Hy-King	12-21x5 39.6 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
BIDDLE D	4-31x5 22.5 Dixie	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
BOUR-DAVIS 17	6-31x44 25.3 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
BREWSTER 4-4	4-31x5 25.6 Bosch	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
BRISCOE B-24	4-31x5 16.3 Conn	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
8-38	8-3 x3 28.8 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
4-38	4-31x5 18.9 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
BUICK D-4-34-35	4-31x4 18.2 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
6-44-47	6-31x4 25.3 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
E-49	6-31x4 27.3 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
CADILLAC 55	8-31x5 31.2 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
CASE T-17	4-31x6 21.0 Conn	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
CHALMERS 6-30	6-31x4 25.4 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
CHANDLER 17	6-31x5 27.3 Bosch	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
CHEVROLET 4-90	4-31x4 21.7 Conn	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
FA-5	4-31x4 21.7 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
FA-2	8-31x4 36.45 Remy	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
COLE 8-60	8-31x4 39.2 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
CROW-ELKHART CE-33-35	4-31x5 19.6 Conn	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DANIELS 8	8-31x5 33.8 Weths	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DAVIS H & I	6-31x4 25.3 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DETROIT J	6-31x5 29.4 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DISPATCH L3	4-31x5 16.9 Conn	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DIXIE FLYER 2	2-cyl 15x4 double-acting steam engine. Boiler pressure 600-lb.	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DOBLE DODGE BROTHERS	4-31x4 24 Delco	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DORRIS 138	6-4 x5 38.4 Bosch	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
DORF 9	4-31x5 16.9 Conn	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195

[illegible]

ABBREVIATIONS—"A.C." Allis-Chalmers, "L.N." Leece-Neville, "Tliss" Tillotson, "Atr" Atomizer, "Recl" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—37½x5½" means that the rear tires are 37½x, and the front are smaller.

Boston Dodge Dealer in War Work

BOSTON, May 10—Charles S. Henshaw, who handles the Dodge Brothers car in eastern Massachusetts, was one of the first to get busy when the war clouds were on the horizon. He sent out word to owners of Dodge cars that he would act as a clearing house for them in registering with the Safety First committee, and he secured the names of a lot of people willing to lend their cars. Particularly gratifying were the responses of women owners. Already 21 women owners of Dodge Brothers cars have enrolled in the Reserve Corps of the Volunteer Motor Detachment.

Covert Factory in Detroit

DETROIT, May 12—The Covert Gear Co. of Lockport, New York, will erect a factory in Detroit which will double the output of the Lockport plant.

Autocar Price Up \$165

NEW YORK, May 4—The Autocar Co., Ardmore, Pa., has raised the price of its chassis to \$1,815. The former price was \$1,650. The bodies have gone up approximately 10 per cent. This company reduced its list price on the chassis in March, 1915, from \$1,850 to \$1,650.

School Helps Government

DETROIT, May 8—Knowing that specially trained motor men will be se-

riously needed by the government for truck drivers, the aeroplane corps, submarine "chasers" and other purposes, the Michigan State Auto School has offered to assist the government to get in touch with such men. Chairman Coffin, of the National Board of Defense, and Secretaries Baker and Daniels of the War and Navy Departments have been advised that the school authorities will compile an alphabetical list of their 4200 graduates for their use.

Scrap Metal Prices

NEW YORK, May 12—Following are the prices for which metal dealers have purchased scrap during the current week. These are from Iron Age:

	Cents Per lb.
Copper, heavy and crucible.....	25.00
Copper, heavy and wire.....	24.00
Copper, light and bottoms.....	22.00
Brass, heavy	16.75
Brass, light	12.50
Heavy machine composition.....	21.50
No. 1 yellow rod brass turnings.....	17.50
No. 1 red brass or composition turnings.....	18.50
Lead, heavy	8.00
Lead, tea	7.50
Zinc	7.00

Dallas Prepares for Show

DALLAS, TEXAS, May 7—The Dallas Automobile and Accessory Dealers' Association started plans this week for the annual automobile show to be held the last two weeks in October. This

year's show will be in the Implement Building at the fair grounds, which will afford almost double the space of the old automobile building.

3000 Ambulances to France

WASHINGTON, D. C., May 4—The United States will send 3000 ambulances and 7700 doctors and drivers to France, the Council of National Defense announced yesterday. The first unit of twenty-two ambulances and 70 men will leave within 3 weeks. This is in addition to the six medical units, comprising about 1000 medical men, which will be sent at once to Great Britain.

Stewart-Warner Men Return

CHICAGO, May 8—An amicable settlement of the difficulties arising a week ago between the Stewart-Warner Speedometer Corp. and its employees was reached last night and the plant opened again this morning. It is understood that the men are returning with the right granted them to organize and to take their grievances to a committee, and that there is a further understanding that the men will not be replaced by women at half pay because of war scares. The strike hinged on the placing of a woman in a position formerly occupied by a man who enlisted and at a larger salary than that which the man drew. Her discharge was demanded by other employees and the plant was closed all last week while adjustment was being made.

Coming—THE SHOW CALENDAR—Events

Shows

Montreal, Can.....	Used Car Show, Coliseum.....	June 20-27
Spokane, Wash.....	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Milwaukee, Wis.....	Interstate Fair.....	Sept. 2-9
Peoria, Ill.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Dallas, Tex.....	Peoria Exposition and International Farm Congress and Soils Exposition, tractor display and demonstrations.	Sept. 18-29
Washington, D. C....	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

New York, N. Y.....	Metropolitan Race, Sheepshead Bay.	May 19
Springfield, Ill.	Convention Garage Owners' Assn. of Ill., Hotel Leland.	May 22-23
Cincinnati, O.	250-mile Race.....	May 30
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.....	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.....	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.....	Championship.....	June 9
Detroit	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.....	Race.....	June 23
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.....	Championship.....	July 4
Tacoma, Wash.....	Championship.....	July 4
Visalia, Cal.....	Road Race.....	July 4

Spokane.....	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich..	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.....	Hill Climb	July 14
Des Moines, Ia.....	Championship	July 14
Missoula, Mont.....	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.....	Intercity Reliability.....	July 17-19
Intercity Reliability...	American Auto. Assn.....	July 17-19
Anaconda, Mont.....	Track Race, R. A. Hiller, Mgr.	July 23
Great Falls, Mont.....	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.....	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.....	National Tractor Demonstration.	Aug. 6-13
Flemington, N. J....	Track Race	Aug. 17
Elgin, Ill.....	Road Race	Aug. 18
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.....	Championship	Sept. 3
Red Bank, N. J.....	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.....	Hill Climb.....	Sept. 8
Providence, R. I.....	Championship	Sept. 15
Allentown, Pa.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 23
New York.....	Speedway Races	Sept. 29
New York, N. Y.....	Championship	Sept. 29
Uniontown, Pa.....	Speedway Races	Sept. 30
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.....	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.....	Race	Oct. 13
Richmond, Va.....	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13
New York, N. Y.....	Race	Oct. 27

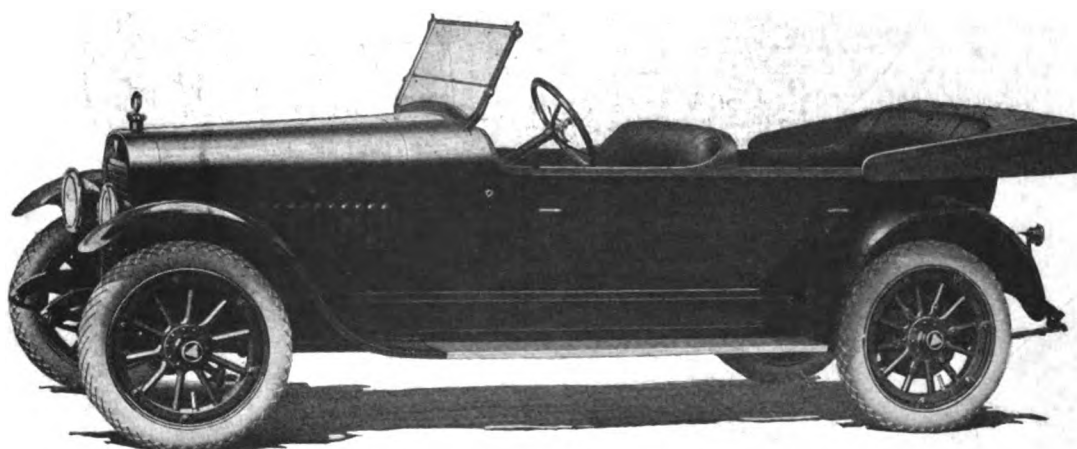
MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 8

New York, May 23, 1917

Ten cents a copy
Two dollars a year



New Super-Six Speedster

Another Fast Selling Hudson

The newest Hudson Super-Six model is a 4-passenger Speedster.

It is bringing new business to Hudson dealers, just as the first Super-Six did.

Even before Hudson Dealers were told anything of its details, even without advertising or announcement of any kind, customers placed orders to assure early delivery.

No description of the Speedster nor any assurance of definite delivery dates was given. Still the orders continued to increase.

And why shouldn't there be such a demand for a Hudson Super-Six Speedster? Everyone knows of the official record of a stock Super-Six chassis in traveling a measured mile at the rate of 102½ miles an hour. And all motorists are familiar with other wonderful performances of the Hudson Super-Six. The Super-Six has proved it has just the qualities you would require in a Speedster.

There could be no concern about the beauty or grace or finish of the body. The artists responsible for such lines as are revealed in the Super-Six Phaeton, the grace of the Hudson Super-Six Limousine, and the daintiness of the Town Car, could be relied upon to design the smartest Speedster. You must acknowledge its low sweeping lines, its rich cobalt blue body with vermillion wheels, the smartest Speedster you have ever seen.

Hudson cars are easily sold.

That is why live dealers seek its representation.

Phaeton, 7-passenger -	\$1650	Speedster, 4-passenger -	\$1750	Town Car Landaulet -	\$3025
Cabriolet, 3-passenger -	1950	Town Car -	2925	Limousine -	2925
Touring Sedan -	2175	(All Prices f. o. b. Detroit)		Limousine Landaulet -	3025



HUDSON MOTOR CAR COMPANY

DETROIT, MICHIGAN

*Service Stations in practically
every city in which your
make of car is sold*



Van Sicklen

ELGIN

SPEEDMETERS

Predominant as the only
instruments which indicate
speed-per-hour on a
scientifically correct basis.

*Prices and Specifications
Mailed on Request*

*The Van Sicklen Company — Elgin Illinois
Factory — Elgin National Watch Co.*

MOTOR WORLD

DEALERS, JOBBERS, GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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"NORMA" BALL BEARINGS

(Patented)

A trouble-proof car may be an ideal impossible to be realized. It can be approached, however, if every care is exercised to make every detail that enters into the construction and equipment of that car as nearly trouble-proof as possible. This emphasizes the important part that so-called minor details play in the performance of any car. Manufacturers of high-grade magnetos and lighting generators have found by experience that "NORMA" Bearings give them dependable bearing service—and they have standardized on "NORMA" Bearings. Makers of cars of the better class have learned by experience that the electrical accessories that give them the most dependable service have "NORMA" Bearings—and they have standardized on these magnetos and lighting generators.

Be Sure—See That
Your Electrical
Accessories Are
"NORMA"
Equipped

THE NORMA COMPANY OF AMERICA

1790 BROADWAY

NEW YORK

Ball, Roller, Thrust, Combination Bearings



Our Big Advertising Guns

Are Belching Forth Page and Double Page Farm Paper Advertisements

We have just started the BIGGEST TRACTOR ADVERTISING campaign ever put out. We are running pages and double pages in the big, influential, high-class farm papers. We are going to make the name and fame of the MOLINE TWO-WHEEL UNIVERSAL TRACTOR so wide-spread—so impressive—that it will be the best known, most popular and most demanded tractor on the market. The

MOLINE UNIVERSAL TRACTOR

because of the great variety of work it does—because it FITS the vast majority of farmers' needs, as none others do; because it is being advertised bigger and better, is bound to be the biggest seller of any tractor made.

You know what it means to handle a LEADER. You know the standing and responsibility of the firm back of this *one-man, all-purpose* tractor. You know you will have to act quick if you get this rich plum.

SOUTHERN
FARM
PAPERS

EASTERN
FARM
PAPERS

BIG
NATIONAL
FARM
PAPERS

CENTRAL
WESTERN
FARM
PAPERS

WESTERN
FARM
PAPERS

Get this Profitable Agency NOW!

Don't delay a moment—write us today. Ask for our literature telling all about the wonderful MOLINE UNIVERSAL TRACTOR and showing the Big Sales Producing Advertising Campaign which is putting this remarkable tractor in the fore-front of them all. Ask about our dealers' "sales help" plan going direct to prospective buyers in your territory, which gets the orders for Moline dealers, on tractors and all farm tools. Also about our 25 Factory Branches which give personal service right in the territory. WRITE TODAY!

MOLINE PLOW COMPANY Dept. M Moline, Ill.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, May 23, 1917

No. 8

How Grand Rapids Solved Its Used Car Problem

GRAND RAPIDS dealers have dethroned the professional used car shopper. No longer can Mr. Car Owner visit W. A. Plumb, who handles the Cadillac, and say:

"You will allow me only \$450 on my old car? Why, H. A. Porter over at the Paige agency said he would give me \$475. And I won't take less than \$500."

That was the old plan. It was the plan that drove dealers to hate each other—the plan that cost every dealer time and money and annoyance. But it is not the present plan, and this is how the dealers overcame it:

- 1—Established an Appraisal Station at association headquarters.
- 2—Made the secretary of the association manager of appraisals.
- 3—Gave him an assistant who is an expert mechanic.
- 4—Allowed the secretary full power in making appraisals.
- 5—Agreed to abide by the appraisal made by the secretary.

This Is How the Plan Operates

By Allen Sinsheimer

WHEN a car owner visits a dealer and asks for an appraisal on his old car he is told:

"If you will drive your car downtown to our association headquarters our expert mechanic will examine and test it and our appraiser will make the valuation on it.

"You will be charged \$1 for this service. The dealer with whom you make your trade will refund the \$1 if you use your appraisal certificate within 10 days."

The car owner drives to the Pantlind Hotel, where the association office is maintained on the ground

AUTOMOBILE BUSINESS ASSOCIATION OF GRAND RAPIDS, MICHIGAN		
APPRAISERS USED CAR SURVEY		
Make of Car <u>Saxon</u>	Year <u>1916</u>	Owner <u>Mr. W. Barth</u>
Motor Number <u>1391</u>	<u>Roadster</u>	Address <u>958 Wealthy St.</u>
		Date <u>5-3-17</u>
WHEELS Bearings <u>Loose</u> Alignment BRAKES Service ✓ Emergency ✓ Levers ✓ TIRES Front <u>1 New, 1 Poor</u> Rear <u>Fair</u> Extra <u>Fair</u> SPRINGS Clips ✓ Hangers ✓ STEERING GEAR Wheel ✓ Post ✓ Connections ✓ AXLES Front ✓ Steering knuckles ✓ Rear ✓ Radius rods ✓ DIFFERENTIAL TRANSMISSION Shifting lever ✓ Gears ✓ Propeller shaft ✓ Universal ✓ Clutch ✓ MOTOR Cylinders <u>6 cyl</u> Valves ✓ Timing gears ✓	Connecting rod bearings ✓ Crankshaft bearings ✓ IGNITION SYSTEM Wiring ✓ Plugs ✓ Coil ✓ Magneto ✓ Dry cells ✓ Distributor ✓ STARTING AND LIGHTING SYSTEM Generator ✓ Starting motor ✓ Storage battery <u>OK</u> GASOLINE SYSTEM Carburetor ✓ Tank ✓ COOLING SYSTEM Fan ✓ Water pump ✓ Radiator ✓ Connections ✓ SPEEDOMETER Head ✓ Cable ✓ Wheel Connections ✓ FENDER, HOOD, ETC <u>3 fenders bent</u> Brackets ✓ Braces ✓ Running boards ✓ Hood locks ✓ TOP Covers ✓ Bows ✓	Curtains ✓ BODY Dash <u>good</u> Seats <u>good</u> Doors ✓ Floor Boards ✓ Finish <u>Fair</u> Windshield ✓ EQUIPMENT Lamps ✓ Horn ✓ Tire Holders ✓ Tool Boxes ✓ Bumper ✓ OILING SYSTEM Motor Base ✓ Motor Reservoir ✓ Transmission Case ✓ Differential Case ✓ Grease Cups ✓ Oil Cups ✓ Fan Reservoir ✓ Timing Gear Case ✓ COMPRESSION <u>All O.K.</u> Vacuum System ✓ REMARKS <u>Spot light</u> <u>Seat covers</u> <u>Extra tire</u> <u>Carbon - needs</u> <u>cleaning</u>
Reg Equip. all in car AUTOMOBILE BUSINESS ASSOCIATION PER <u>Chas. Vaughan</u>		

How the Grand Rapids Appraiser Works

The figures below are for the Saxon Six roadster mentioned in the two accompanying forms on this page:

List price of 1916 Saxon Six	\$815.00
Less 45% depreciation	366.75
	<u>\$448.25</u>
Add—Spotlight	\$5.00
Seat covers	10.00
Spare tire	15.00
	<u>\$30.00</u>
	<u>30.00</u>
	<u>\$478.25</u>
Appraised value of car	480.00

FIGS. 1 (LEFT) AND 2 (BELOW)

When an owner takes his car to the association's office for appraisal it is examined by a skilled mechanic who makes out the report shown at the left. When the report is turned over to the appraiser he makes out the certificate shown below, and this then becomes the car's trading value for 10 days.

floor, and is turned over to the expert mechanic, who:

- 1—Carries a blank sheet—Fig. 1.
- 2—Examines the car and checks off the sheet.
- 3—Drives the car over the city hills.
- 4—Tests the compression by applying cranks on all cars equipped with starters.

The sheet then is taken by the mechanic to Ernest T. Conlon, appraiser and secretary of the association. He:

- 1—Deducts 40 to 45 per cent from the list price of any car 1 year old.
- 2—Takes off an additional 20 per cent for every additional year.
- 3—Totals the cost of repairs needed on the car and subtracts them.
- 4—Totals the value of the extra tires, seat covers, and other equipment, and adds it.
- 5—Uses this for the appraisal value of the car.
- 6—Fills in a duplicate form—see Fig. 2.
- 7—Stamps it with the check protector.

8—And hands it to the car owner with a copy of the expert mechanic's report, and a pamphlet telling why dealers are entitled to some profit on used-car sales.

The owner pays \$1, and is then entitled to take his appraisal certificate to any dealer in the city and purchase a new car, with an allowance as specified.

APPRAISER CERTIFICATE	
Number <u>415</u>	Motor No. <u>1391</u>
	Date <u>May-3-1917</u>
This is to certify <u>Mr. W. Barth - 958 Wealthy St.</u>	
(Name)	
<u>Grand Rapids</u>	<u>Michigan</u>
(City)	(State)
has presented <u>Saxon</u>	Car <u>1916</u>
(Name of Car)	(Year)
for appraisal. In its present condition for a period not to exceed ten days we value this car at	
Dollars	
General conditions <u>Good</u>	\$ <u>480.00</u>
Rear Axle <u>Good</u>	Equipment
Transmission <u>Good</u>	<u>Spot light; Seat covers;</u>
Motor <u>Good</u>	<u>Extra tire; - Fair</u>
TIRES	
Front <u>New & Poor</u>	Signed <u>Ernest T. Conlon</u>
Rear <u>Fair</u>	Appraiser

He is granted 10 days in which to use the certificate. After that time he must have a new appraisal made and pay another \$1 fee.

The 10-day limit is fixed because cars are liable to depreciate after a longer time, and may not be worth the fixed appraisal price.

The owner must display his appraisal slip when making a trade. This tells the dealer making the trade what

he can allow and what the car contains in extra equipment.

How Depreciation Is Figured

Conlon arrives at the percentage figures for making appraisals by taking the dealer's commission of 20 per cent plus 5 per cent for immediate depreciation following a sale, plus 20 per cent for depreciation each year the car is used.

At the end of each month the dealers forward to Conlon individual slips showing the individual sales of used cars, prices allowed, equipment, etc. (see Fig. 3), and a complete slip on which all used-car sales are entered in a condensed form (see Fig. 4). By checking up these slips it is possible to find out what sales have been made and if all dealers are sticking by the plan.

Here Are the Results

The buying public first objected to the plan. It objected strenuously. It found it could no longer bully and bargain the dealer into an exorbitant appraisal price. But it has grown to prefer the plan. It discovered that the mechanic and appraiser know their business, that the appraisals are fair, that each transaction is based on its merits, that the car owner is allowed credit for every point, and that the plan is merely an efficient business performance.

The dealers prefer this plan because:

1—It eliminates the used-car shop-per.

2—It saves the time of appraising used cars.

3—It prevents dealers being played against one another on used-car appraisals.

4—It insures an appraisal which allows enough profit to pay the cost of handling used cars.

5—And it is making a contented motoring public.

The Cost of the Plan

The plan does not pay for itself with the \$1 fee.

The association maintains an office at a cost of \$12 per month. This low rent is granted by the landlord because the office acts as guide to tourists stopping at the hotel where the office is located.

The secretary of the association—



The Grand Rapids Automobile Business Association maintains an office in an alcove in the city's leading hotel, the Pantlind, and supplies information, sells Blue Books and maps and is in touch with hundreds of people. It is right now active in war work. Ernest T. Conlon, the secretary and used car appraiser, sits at the right, his assistant at the left.

the appraiser—receives \$2,000 per year.

The stenographer is paid \$700 a year.

The expert mechanic receives \$25 per week.

In addition there is the cost of printing of the various blanks, which amounted to \$75 for 4 months.

During this period there were 354 appraisals, bringing in \$1 each.

More than 90 per cent of these appraisal certificates have been used.

The full revenue of the certificates amounted to \$354.

This was not enough to pay all expenses, but it has paid for the printing and the salary of the expert mechanic and the bookkeeping; and since the association employed its secretary and stenographer before it started the ap-

praisal plan, the plan has actually been no extra expense.

The association holds meetings twice monthly.

At first it was thought that the dealers could be forced by law to keep their agreement to abide by the appraisals made by the secretary, but since this was found illegal the secretary has tried education instead of force.

He reads a section of MOTOR WORLD to the members at each meeting.

He has prominent and learned speakers to address the members. Recently he has had addresses by bankers, explaining why so many dealers have poor credit, and by sales managers of motor-car factories.

These meetings are well attended, and usually draw an attendance of 50 to 60, the 32 dealers often bringing their salesmen with them.

AUTOMOBILE BUSINESS ASSOCIATION (INCORPORATED)						
APPRAISED CAR REPORT						
MAKE <u>Saxon</u>		MONTH ENDING <u>May -3</u> 191 <u>7</u>		SERIAL NUMBER <u>MOTOR 1391</u>		
Mr. W. Barth				VEHICLE		
PLEASE FILL OUT ALL COLUMNS MODEL, YEAR AND LIST PRICES ARE VERY IMPORTANT						
MODEL	YEAR	TYPE	PASS. CAPACITY	CYL.	H. P.	ORIGINAL FACTORY LIST PRICE
1916	Saxon	Roadster		6		815
						480 OC
REMARKS <u>Spot light-Seat covers-Extra tires-Fair</u>						
FILL IN ON TYPEWRITER IF POSSIBLE						
AUTOMOBILE BUSINESS ASSOCIATION OF GRAND RAPIDS, MICHIGAN ERNEST T. CONLON, SECRETARY						

MONTHLY SALES LIST	
(CAR) _____	
EFFECTIVE ON AND AFTER _____ 191 _____	
AUTOMOBILE BUSINESS ASSOCIATION OF GRAND RAPIDS, MICHIGAN	
GENTLEMEN: THE PRICES LISTED BELOW ARE THIS MONTH'S QUOTATIONS ON MODEL _____	
CYLINDERS _____	CAR _____ OVERHAULED AND IN GOOD RUNNING CONDITION:
LIST PRICE \$ _____	
1917	\$ _____ To \$ _____
1916	\$ _____ To \$ _____
1915	\$ _____ To \$ _____
1914	\$ _____ To \$ _____
1913	\$ _____ To \$ _____
1912	\$ _____ To \$ _____
NOTE: PLEASE FILL OUT THE RESPECTIVE YEARLY PRICES FOR THE MODEL LISTED ABOVE COVERING THIS MONTH'S SELLING AND RETURN THIS REPORT IMMEDIATELY TO THE OFFICE OF THE SECRETARY.	
DEALER _____	

Figs. 3 and 4—Dealers report used car sales to the association office on the form at the left. Monthly quotations are given on the form shown at the right. The association also records all its appraisals on the form at the left and has some valuable data of this kind in its office

That 5% Tax on Motor Cars Will Cut Your Discount 5%

SUCH a cut in your profits is on the way if you don't stop it. It's no joke, no big scare without a foundation—it is a mighty serious situation.

The government must raise war revenues and has in hand a bill fixing certain taxes, among them a tax of 5% on cars. We're all willing to do our bit but we don't want to be made to carry an unjust share of the load. We demand fair play.

Here's What Will Happen If the Bill Goes Through

THE government will go to the car manufacturer and say: "Here, Mr. Manufacturer, you've got to pay a tax of 5 per cent on the price of cars you make," and the manufacturer will have to pay it.

The only thing the manufacturer can do is pass the tax along to you, the dealer, and if you can't get the prospect to come across with the higher price you'll have to *suffer the loss*.

Furthermore, many dealers were foresighted enough to store cars last winter to meet this summer's demand. You have been patting yourself on the back to think you have lots of cars to sell.

Well, right here is where you can quit patting yourself and kick yourself around a while, for the government is coming to you and will say: "Here, Mr. Dealer, you've got to pay a tax of 5 per cent on all the cars you have on hand." And you'll have to pay it—and *there goes the summer's profit for a lot of you*.

Furthermore, the law doesn't know as much as it might about the motor-car business and this measure can be stretched to cover used cars. Wouldn't it be a fine, big joke if you had to pay a tax of 5 per cent on all the old used cars you have on hand? Wouldn't that be funny? The only reason it wouldn't be funny is that it would be a tragedy. *It would lay thousands of dealers out so flat they never would get up on their business feet again.*

The law will also tax tires 5 per cent.

It will include passenger cars.

The law-makers don't seem to know that 12 makers build 80 of the cars made, and that there are scores of smaller companies whose profits are small. A few of the big companies, like Ford, could stand the tax, perhaps, but many manufacturers would be wiped off the map, all of which would demoralize the trade from top to bottom.

Here's the Unjust Part

Perhaps some of you may say: "I'm willing to do my part. I can stand the 5 per cent tax."

Very well. Maybe you can. But after the law has been working a while you will discover that the hardware man, the implement dealer, the grocery man, the butcher, the baker and nearly all *the rest of the business world isn't compelled to pay this 5 per cent tax*.

Then you'll say: "Here! Here! I'm willing to pay any old kind of tax to help out in these trying times, but what's the idea in letting everyone else out and sticking me for all this?"

And then you'll learn the true situation, for the government will explain, as it is now explaining at

Washington: "The grocer, the hardware man, the butcher, the baker, the implement man and all the rest of these people are omitted because they are selling necessities. You're selling a luxury."

You'll shriek: "Luxury! Luxury! What I sell is just

Get on the Firing Line NOW

IN Washington are representatives of the manufacturers and dealers. They have an office with a corps of workers and are trying hard to have this 5 per cent tax killed.

Their arguments are effective in some instances, but they state that what is needed is a word "from back home" to the Congressmen. The men on the firing line are pleading for YOUR help.

Send telegrams to your Senator and Representative, urging the killing of this 5 per cent tax on YOUR business.

Wire TO-DAY.

as much a necessity as anything that's sold! Cars are business machinery. They have speeded up the business life of the world. They have made possible the speed you will need in this war. And tires and trucks are assuredly necessities. They——"

And the government will reply: "Oh, no! We know you. You're selling a luxury! Haven't we seen people driving cars nights and Sundays and don't we know they were not on business. Cars are just as much a luxury as face paint, toilet powder, cold cream, Lydia Pinkham's compound and all that stuff—so we've put you all into a war bill and we're going to make you *luxury people* pay a fine, big war tax."

You will sputter and fume about being classed with face paint and cosmetics, with patent medicines and perfumed soap, and you'll declare the law the most unjust thing that ever happened—but you'll pay the tax.

If you can't pay it you can go out of business. TAKE YOUR CHOICE.

Do This NOW

There is one avenue of hope. The bill isn't a law yet, but it is likely to be. In fact, some of the wisest heads in the business—both motor and law-making—believe it is going to be *jammed through* in some way or other.

The government MUST raise money. The motor industry doesn't mind paying *taxes on profits*, or taxes imposed in many ways, but it does protest against a tax that will *make profits impossible* and slow down business to the point of stagnation.

In its efforts to raise money Congress is guided by the voice of the people. You are one of the people. Wire your Senator and Representative TO-DAY.

DO IT NOW!

To-morrow may be too late.

Tell them that the 5 per cent motor car tax, or ANY TAX like it, will work you a great injury, may put you out of business. Make it strong. And act NOW.

Tell your Senator and Representative to oppose this tax VIGOROUSLY. Follow your telegram with a letter.

Go yourself if you can.

If you should go to Washington you can find your congressman in these ways: If sessions are on send your

card into the Senate or House by a boy and your man will come out. If sessions are not on your man likely will be in his office. The House office building is across the street from the House, and the Senate office building is across the street from the Senate.

If you can't go SEND A WIRE TO-DAY. Don't expect the big town distributors to do it all. The small town men MUST HELP.

The 5% Tax Will Do This

1—The tax will make it necessary, because of the high price of materials and the small profit margins, for the manufacturer to pass the tax on to the dealer.

2—The dealer will have to (a) take it out of his profits or (b) get it from the buyer by RAISING THE PRICE. Few dealers can afford to TAKE IT FROM THEIR PROFITS.

3—If an attempt is made to pass the tax along to the consumer it will slow up sales. Dealers may be STUCK WITH BIG STOCKS OF CARS.

4—Buyers will say: "I guess I'll keep the old car another year. I guess I'll wait and see if the war won't end soon. Then prices may come back." They will have all sorts of reasons for NOT buying cars.

5—Cars sell in classes. That is, buyers are graded in layers, just like a layer cake. Henry Ford says that every time he cuts \$50 off the car he gets down into an entirely different class of buyers. Conversely, every time you add \$50 to the price you cut off one strata and make it harder to sell the car. The tax will amount to \$50 on a car that wholesales at \$1000.

6—The truck business is just getting a good start. But if it is put in the same class with face paint and fol-de-rols the business will get a terrific setback.

(Wire your protest to your Senator and Representative TO-DAY.)

Write Your Senator TO-DAY—Senate Building, Washington, D. C.

Alabama—John H. Binkhead, Oscar W. Underwood.
Arizona—Henry F. Ashurst, Marcus A. Smith.
Arkansas—Joe T. Robinson, William F. Kirby.
California—Hiram Johnson, James D. Phelan.
Colorado—John F. Shafroth, Charles S. Thomas.
Connecticut—George P. McLean, Frank B. Brandegee.
Delaware—J. O. Wolcott, Willard Saulsbury.
Florida—Park Trammell, Duncan U. Fletcher.
Georgia—Thos. W. Hardwick, Hoke Smith.
Idaho—William E. Borah, James H. Brady.
Illinois—H. J. Lewis, L. Y. Sherman.
Indiana—Harry S. New, James E. Watson.
Iowa—William S. Kenyon, Albert B. Cummins.
Kansas—W. H. Thompson, Charles Curtis.
Kentucky—Ollie M. James, J. C. W. Beckham.
Louisiana—Joseph E. Ransdell, Robert F. Broussard.
Maine—Frederick Hale, Bert M. Fernald.

Maryland—J. I. France, John W. Smith.
Massachusetts—Henry Cabot Lodge, John W. Weeks.
Michigan—Chas. E. Townsend, William A. Smith.
Minnesota—Frank B. Kellogg, Knute Nelson.
Mississippi—John S. Williams, J. K. Vardaman.
Missouri—James A. Reed, William J. Stone.
Montana—Henry L. Myers, Thomas J. Walsh.
Nebraska—G. M. Hitchcock, George W. Norris.
Nevada—Key Pittman, Francis G. Newlands.
New Hampshire—Henry F. Hollis, Jacob H. Gallinger.
New Jersey—J. S. Frelinghuysen, William Hughes.
New Mexico—A. A. Jones, Albert B. Fall.
New York—William Calder, Jas. W. Wadsworth.
North Carolina—F. McL. Simmons, Lee S. Overman.
North Dakota—Porter J. McCumber, Asle J. Gronna.

Ohio—Atlee Pomerene, Warren G. Harding.
Oklahoma—Robert L. Owen, Thomas P. Gore.
Oregon—Harry Lane, Geo. E. Chamberlain.
Pennsylvania—Phillander C. Knox, Boies Penrose.
Rhode Island—Peter G. Gerry, Le Baron B. Colt.
South Carolina—Benj. R. Tillman, Ellison D. Smith.
South Dakota—Edwin S. Johnson, Thomas Sterling.
Tennessee—K. D. McKellar, John K. Shields.
Texas—Chas. A. Culberson, Morris Sheppard.
Utah—Wm. H. King, Reed Smoot.
Vermont—Carroll S. Page, W. P. Dillingham.
Virginia—C. A. Swanson, Thomas S. Martin.
Washington—Miles Poindexter, Wesley L. Jones.
West Virginia—Howard Sutherland, Nathan Goff.
Wisconsin—Robt. M. LaFollette, Paul O. Huston.
Wyoming—John B. Kendrick, Francis E. Warren.

Spend the price of a telegram TODAY and save your business from being wrecked.

Ask your newspaper to furnish you the names

of your Congressmen—if you don't know them.

Send that telegram TODAY—TODAY—TODAY—TODAY—TODAY—TODAY.

Help Make the Best of a Bad Situation

THE readjustment of the country to war conditions has disturbed business. Car buying has slowed up. No use denying it.

The principal factor in this slow-up is the unsettled state of the war situation. Congress is passing bills, the war machinery is being whipped into fine shape, and once we get squared away there should be a healthy reaction.

Business should come back.

This prophecy is paralleled by conditions at the time war was declared. Before the declaration there was uncertainty. No one knew what was going to happen. But as soon as the declaration of war was made and the people KNEW what was going to happen, confidence returned and there was a healthy pick-up to business.

Once the *whole war situation is cleared up* and we all know what's going to happen business should come back.

It's going to be a year of hard work—no doubt of it—but if we all keep our heads and exercise business common sense and push we can pull through with a pretty fair year's business despite the war. But there is an IF in it.

The IF is, right now, this threatening 5 per cent tax. If that is loaded onto the industry, on top of everything else, we won't have even a fair year. It will be rotten.

Get busy and beat this tax. You're like a man going to be hanged at sunrise unless something happens—and it's up to YOU to make that thing happen.

Get busy! TO-DAY!

How Can You Pay War Taxes If You Can't Make Any Money?

WHEN the war tax regime is in full swing you will pay taxes 24 hours a day.

When your alarm clock awakes you in the morning you'll pay a tax—on the clock.

Your feet hit the rug or carpet. That is taxed, and when you get to the last analysis you pay that tax.

The bed you have just left is taxed.

The chair you had your clothes on is taxed.

You take a bath. The tub is taxed.

You shave. Your razor, soap, powder and everything else are taxed.

You look in the mirror. That's taxed.

You put on your clothes. They're taxed.

You eat breakfast. That's taxed in several spots.

You go to the office. That's taxed.

You use the telephone. That's taxed.

You write a letter. That's taxed.

Nearly everything you do or use is taxed in some way—and when you get to the final analysis it is YOU who pay the tax.

But we don't mind all these taxes, do we? Certainly not! We'll pay our share every inch of the way. What we object to is a tax which will make it impossible for us to make any money with which to pay the rest of the taxes.

If the 5 per cent tax is put on cars it will shrink sales and cut profits to the point where we won't be able to pay the grocery bill and house rent, let alone war taxes.

Take all the money we have, Mr. Congressman, but don't cut off the hands with which we earn it.

Help Kill This Bill

"(a) Upon all automobiles, automobile trucks, automobile wagons and motor cycles, and automobile, motor cycle, or bicycle tires (including inner tubes) sold by manufacturer, producer, or importer, a tax equivalent to 5 per centum of the price for which so sold, provided that from the tax which otherwise would be imposed upon a manufacturer, producer or importer of automobiles, automobile trucks, automobile wagons, or motor cycles there shall be deducted the amount of any tax imposed by this subdivision upon the tires used thereon.

"That each manufacturer, producer, or importer of any of the articles enumerated in

above section shall make monthly returns under oath in duplicate and pay the taxes imposed on such articles by this title to the Collector of Internal Revenue for the district in which is located the principal place of business. Such return shall contain such information and be made at such times and in such manner as the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury may by regulations prescribe.

"That upon all the articles enumerated in subdivisions (A), (B), (E) and (F) which are on the day this act is passed held by other than the manufacturer, producer, or importer, and intended for sale, there shall

be levied, assessed, collected and paid a tax equivalent to five per centum of the price for which sold by the manufacturer, producer or importer. This tax shall be paid by the person, corporation, partnership, or association so holding such articles. That upon all articles enumerated in subdivisions (G), (H), (I) and (J), which are not in the possession of a retailer on the first day of May, 1917, and which on the day this act is passed are held and intended for sale, there shall be levied, assessed, collected and paid, a tax equivalent to five per centum of the wholesale price paid therefor. This tax shall be paid by the person, corporation, partnership, or association so holding such articles."

THE FARM TRACTOR

This is the first of a series of articles which will take up in an analytical way those features of tractor design that will assist the dealer and garageman to a better understanding of manufacturing, merchandising and maintenance in this field

What Kind of Machine Does the Farmer Need?

1

THERE is a big market for a good farm tractor. Of this there can be no doubt.

During the next year the American farmer has got to feed America and he has also got to supply a goodly part of the food that our European Allies must have to keep their armies in the field and the wheels of their commerce turning.

In sections of the Northwest where the big crops come from, the shortage in the tractor supply already has been felt. Dealers have been unable to keep up with demand because the tractor factories have not been able to turn tractors out fast enough.

For these reasons, the farm tractor field has appeared all the more alluring to the motor car dealer and garageman; he has demonstrated his ability to apply the merchandising idea to tractors quite as well as to motor cars and accessories; and no one is in a better position to give that degree of intelligent service that tractor purchasers must have.

Nevertheless, this is no time for any dealer to rush blindly into the tractor business, with the thought perhaps that he can order a few tractors this week, get them in his place of business next week and sell them the following week.

Careful investigation is necessary first. The dealer must examine into the vitals of the tractor. He must find out what is the most logical type, and in doing so he must take a long look into the future.

Taking the manufacturers who to-day make or could make tractors, a dip into the future, say 10 years hence, would show perhaps twenty of those firms as the leading tractor manufacturers of the world. Among them would be some who are making tractors to-day.

Nevertheless, the possession of a big tractor output to-day is no assurance that the maker may not be in an entirely different field 3 years hence. The tractor maker who has the highest hope for the future is the one who is to-day making the tractor that does good work and gives the least trouble.

A Big Market Awaits the Good Tractor

The question is often asked, "Is there not a price limit for a popular machine?" The answer is

quite definitely no. There may be an idea at the present that \$1,000 is a goal to strive for in designing a three-plow machine; that other sizes ought to fall between specific limits of price; but it is impossible to uphold this view in argument. Of course, the farmer will buy as cheaply as he can, but he will no more buy the lowest price tractor than he will the lowest price automobile.

What we want to avoid is foolish price "ideals." Suppose a three-plow machine, with the proper workmanship and good design, can be sold for \$1,200 or 1,500, or any other similar figure; then it is not wise to "trim" it so as to allow it to be marketed a couple of hundred dollars cheaper. It may be argued that the farmer does not know the difference between cast and cut gearing. Perhaps he does not now; BUT HE WILL.

Remember that a small manufacturer does not buy the cheapest machine tools he can get. If his ability to buy new tools is limited he is more likely to buy a good one while he is about it, knowing that it will last long and work economically. The business of the tractor industry is to show that the tractor which does the best work and keeps on doing it longest is the best proposition.

And the tractor need not be so very expensive at that. The engine is the main essential; the transmission next. After these the frame, wheels, etc., can be of cheap material and rough construction. There is no finish to think about. A good coat of paint protects from rust.

Let us not forget that tractor service is the hardest of all, that a truck has an easy life by comparison, and we instantly see that good workmanship in the engine and transmission is absolutely essential. Poor workmanship means disaster, and the cheapest tractor is likely to be the most expensive over a period of, say, a year's work.

The big chance in this industry now is for good tractors. If they are made good in the first instance they can be cheapened later, in proper manufacturing

(Continued on page 35)

Quick Economical Service Rendered in Mammoth New York Overland Station

**Standard Charge for Every Job—Customer Knows Beforehand
What He Is To Pay—Repair Expense Is Minimized—Factory
System for Routing Work—Building Equipped for All Repairs**



Fifty-seventh Street looking west. The size of the building is impressive, but so carefully has every inch of space been utilized that after going through it the wonder is that a much greater floor area is not required.

Looking across the wholesale showroom toward the offices on the tenth floor. This view is the one which first greets the eye of the visitor. At the rear is the depot for new cars waiting for delivery to dealers.



IN quickness of service and reasonableness of charges the mammoth new Overland service station in New York probably outclasses all others. The ten stories, 150 x 200, totaling 300,000 sq. ft., and the equipment are simply a means to an end, which is to enable Overland owners to operate their cars with minimum repair expense. Another function is to minimize discomfort due to car trouble by effecting the cure in the shortest time. Thus is the service station made into a really effective arm of the sales organization because the less it costs to operate a car, the more people there are who can afford to buy them; the less trouble a car gives the more there are who will desire to buy them.

In addition to being the service station for the metropolitan district and the parts depot for greater New York territory it is also the wholesale headquarters for this territory, which includes the lower part of New York State, part of Connecticut, and New Jersey. More than 100 dealers are served.

The building stands as a towering monument to efficient service. It is an example of modern service methods expanded to the nth power. It is the result of a complete realization of the fact that service gives mutual benefit to dealer and owner—it is not simply a one-sided advantage to the owner alone.

The most interesting feature about the new service station is, as already stated, not the building itself, but the peculiarly efficient service which is rendered. The excellent building and equipment is simply a means to this end.

There is a standard price for every job on every one of the many models produced by the Overland company so that the customer knows beforehand just how much it is going to cost him.

Furthermore it is possible to say with great precision just when a car will be ready.

So carefully is the whole force organized that the errors and oversights due to a ponderous organization have been eliminated, and the owner is sure of obtaining as careful and satisfactory attention as if he had his car repaired in a one-man shop. At the same time he benefits by the unusual facilities offered by a plant of this size.

The underlying thought in the development of metropolitan service was that its primary purpose was to benefit sales. Quick, satisfactory, economical service means better satisfied Overland owners and, consequently, an ever increasing demand for the product.

The problem of giving efficient service was solved by fully departmentizing the work so that there is an expert for each job. Coupled with this is an extraordinarily efficient system of inspection so that all delinquencies are caught.

The necessity for giving quick service and delivering the car to the owner on the exact hour promised, in almost every case, has resulted in some striking innovations in repairshop organization and management.

How the Space Is Used

The first floor is a receiving and delivery floor for cars—cars to be repaired, cars repaired and waiting for owners, new and used cars to be delivered to owners. Also on this floor, across the front, are the offices.

The second floor is for quick service. Small ailments which do not require either much time nor elaborate equipment are taken care of here.

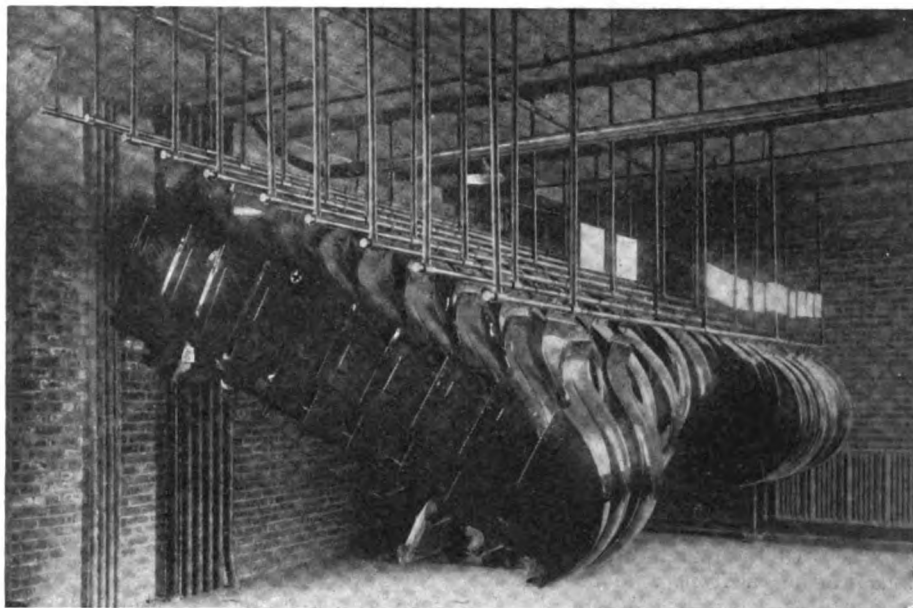
The third and fourth floors are used for the shop which is divided into several departments so that experts may be developed in each line of work. Thus, the men who work on axles exclusively are better and quicker workmen than if they were called to divide their time on all the different parts of a car.

The third floor has departments for axle work, electrical work, and miscellaneous. Under the last head come such troubles as rattling fenders, squeaks, etc. From the nature of the work on this floor it is readily seen that this is logically the place for putting used cars in condition. Every car taken in trade is thoroughly gone over and put in good mechanical condition. Unless the paint is exceptional, it is also repainted, on another floor.

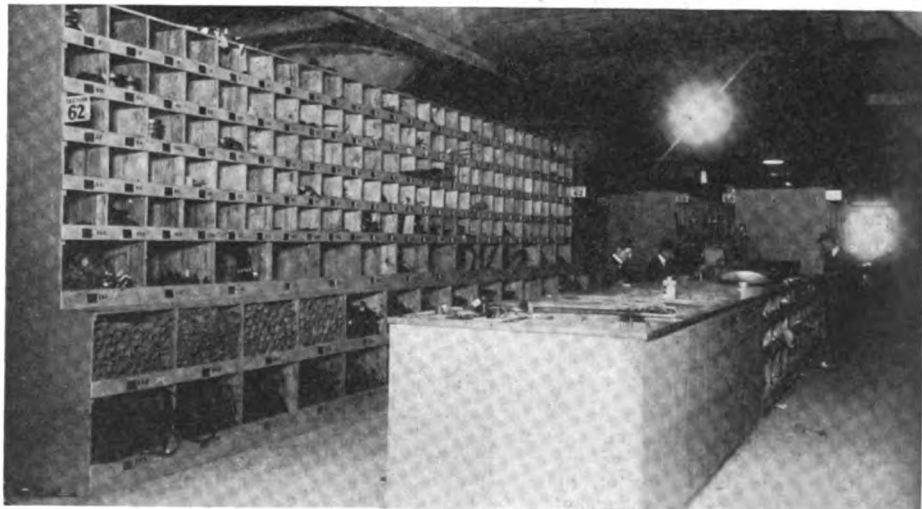
Engine repairs, blacksmith and welding work are done on the fourth floor. There are benches for minor repairs along one wall for the full depth of the



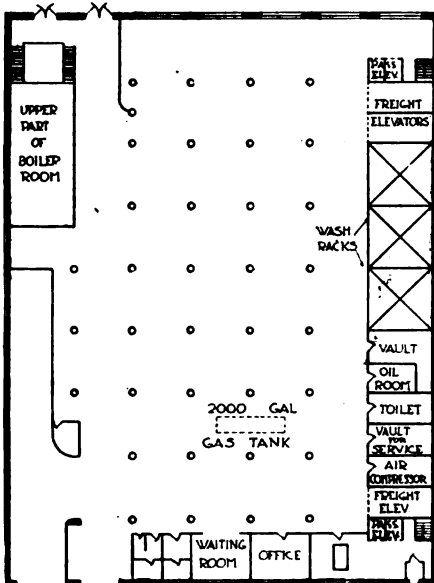
There is a special compartment for each radiator in the radiator rack, thus minimizing danger of injury



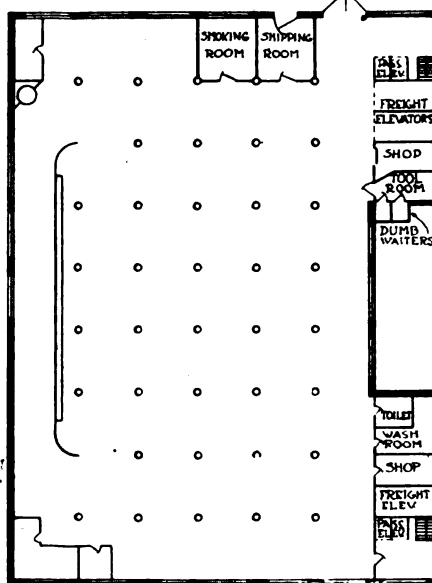
This method of carrying fenders is unique. Less space is required, the possibility of marring the finish is greatly reduced, and it is much quicker and easier to obtain a fender



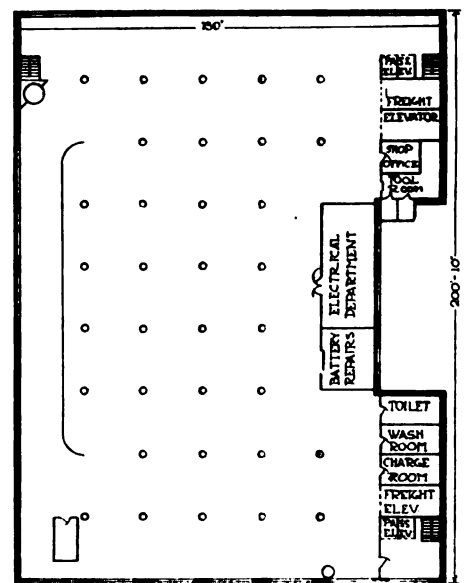
A small part of the stock room, which covers a whole floor. The table is for wrapping goods. There are 14,000 bins in the stock room, which occupies a full floor with an area of 30,000 sq. ft.



First floor, showing waiting room, office, wash racks, etc., and ramp to second floor. The planning department is located in the office. The vault for service is where the owner's loose belongings are housed



The second or quick service floor is reached by a ramp from the first and also connects by a short incline with the street at the rear. The employees enter at the rear and the timekeeper's office is in the room marked Shop



Third floor is for axle work, electrical work and miscellaneous jobs such as removing rattles and squeaks. Used cars are put into condition here. The battery charge room is separate from the repair room

building. All important engine work, however, is done at the front of the building where the light is best. Extremely good facilities are provided. There are engine stands, and conveniently placed, at one end are the machine tools.

In most cases it is found to be quicker and more satisfactory to remove the engine from the chassis and place it on an engine repair stand. So that the engines may be transported readily, there are overhead trolleys running to the front of the shop from all parts of the floor.

Complete equipment is found in the forge shop and the welding room. The aim is to do the repair work, wherever possible, without removing the parts from the car. Under this head would come straightening a front axle or a frame member.

The exhaust gas from an engine under test is not allowed to vitiate the air but is carried up through a flexible tube, which fits over the end of the exhaust pipe, to a 10-in. pipe connecting with the chimney. There is a connection for every car space. Correct placing of the cars and waste of space is prevented by whitewash lines on the floor.

A complete body shop occupies the fifth floor. There are facilities for repairing both metal work and upholstery. Enameling ovens are used to aid in drying the paint.

The sixth floor is devoted to parts and accessories housed in 14,000 bins. An interesting feature of the stock room is the hanging of the fenders on a large rack. They take up less space this way and the danger of marring the finish is minimized.

The seventh floor is used for preparing new cars ready for delivery. They are tuned up, washed and polished.

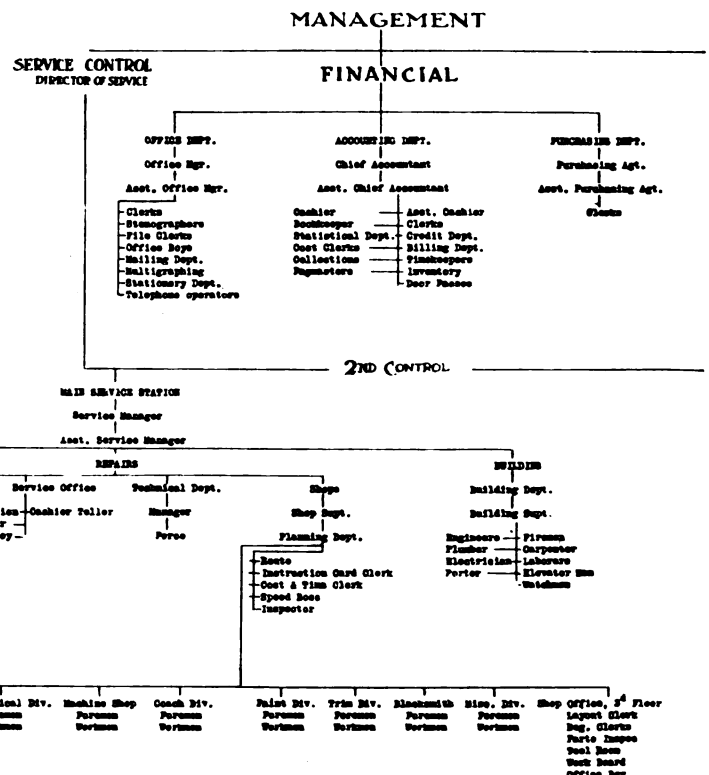
Eighth and ninth floors are for new car storage in charge of a storekeeper.

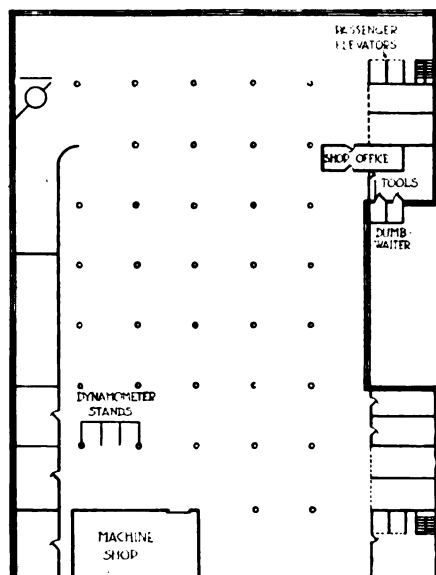
The tenth floor contains the general offices, and wholesale showroom, which is at the front. At the rear is a large storage space from which new cars are delivered to dealers. A dealer purchases the car in the office, and then goes to the rear where it is waiting for him.

One of the bug-bears of the repair-shop business has been the fact that the owner, particularly the owner of a popular-priced car, wants to know what his repairs are going to cost him beforehand. The result has been that many times the esti-

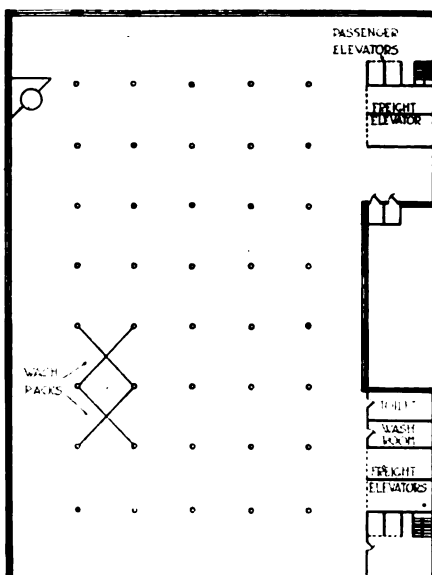
mates made have been too low and the owner has been forced to pay, against vigorous protest, a bill much higher than he expected. In many cases, fair dealing repairmen have been accused of dishonesty under such circumstances. In many other cases, the service station or repairman has made the estimate ridiculously high so that he would be fortified against this difficulty.

The Overland company, has, however, solved the problem by scientifically working out the exact cost of every job with the result that it is possible to say in advance, with fairly reasonable accuracy, just what the work will cost. There is a

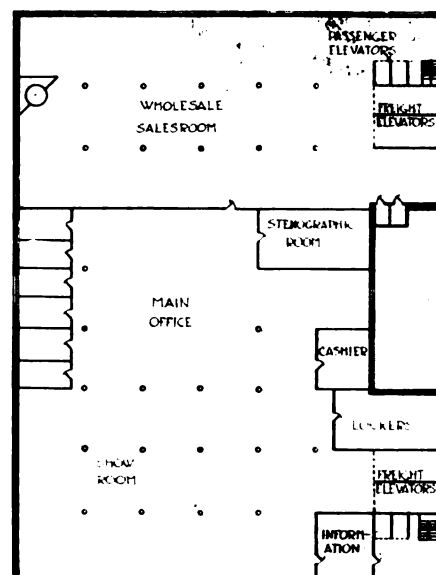




The fourth floor is devoted to engine repairs and general overhauling. The machine shop is at the front, and beside it is the section where engines are rebuilt. Overhead trolleys are used



This is the plan for the seventh, eighth and ninth floors. There are two wash-racks. The seventh is for tuning up new cars, the eighth and the ninth for storing new cars



Tenth floor with wholesale showrooms at front, offices in center and wholesale delivery at rear. The private offices are at the left

standard time and a standard charge for every job from removing and replacing a spark plug on the model 75, for example, to completely overhauling and repainting the Model 86B, for instance.

For a period of over a year, the cost of every job was kept account of separately and from time to time these jobs were classified and an average figure for time and material obtained. Furthermore, the movements of the workmen were carefully studied and standard time for doing any particular job was only arrived at after eliminating all lost motion.

For example, the time for grinding a valve on the Model 79 was obtained by holding a stop watch on the workman.

He was not only required to use the shortest possible method in doing the work, but in addition, all lost motion was carefully subtracted from the total time. Thus, any seconds spent in contemplation, looking out of the window, or juggling tools, talking to other workmen or anything of that sort was eliminated.

The result was the actual time that the man worked. To this minimum amount was added whatever time it was deemed necessary for excusable resting, or loafing or interruptions or delays of various sorts, it being conceded that no man can work continuously. In addition, time was allowed for gathering tools together. This total time was taken as the standard time for the job. Workmen must come within this time in 80 per cent of the cases in order to hold their jobs. The result is that on the average, the work is done in standard time and consequently the company comes out all right.

At the same time this method is of advantage to the owner because the job is done in minimum time and consequently the standard charge which he has to pay is probably less than he could have the work done for any place else in the country.

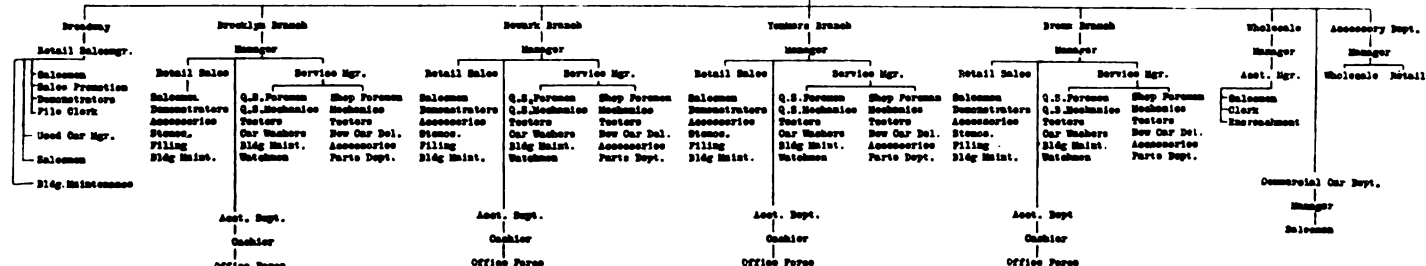
The tremendous value of this system as a means for increasing car sales is readily appreciated. It means that there will be no exorbitant repair bills. In every case the owner pays a reasonable

charge for the work to be done and that he does not have to stand for any errors or mistakes. He pays a standard charge and that is all. Thus is the repair expense on Overland cars minimized.

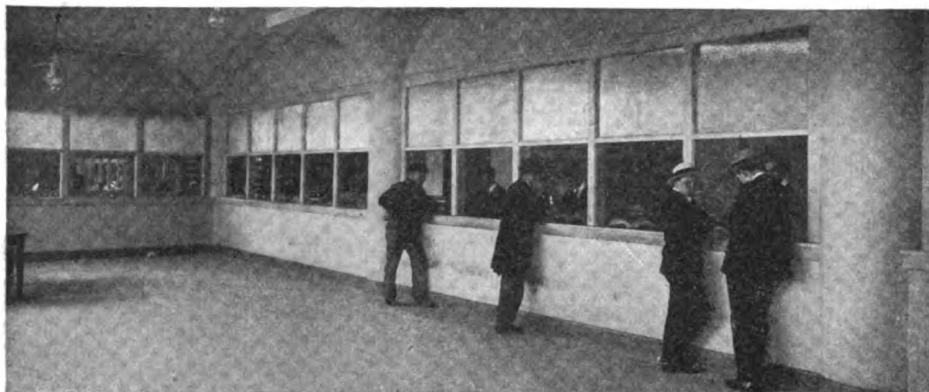
From a policy standpoint, also, this system is the most desirable. Under any other method, a certain percentage of customers would naturally become knockers because they might be charged more for repair work than they expected, but with this system, the owner knows beforehand exactly how much he will have to pay and consequently he cannot be disagreeably surprised.

The organization is more like that of a highly efficient factory than that of a service station. It is a huge machine in which every part is moving in unison. It is just as precise in its movement and has just as little lost motion, as the chain method of assembling parts. The movement of work through the service station is handled in the same way as it would be in a factory, and due to the fact that the standard time for doing the work on a given car is known accurately beforehand, it is possible to route the job through the different departments with no delay and no lost motion. This in itself produces reduction in cost because it effects a saving of labor and a reduction in overhead because the plant can work at greater capacity.

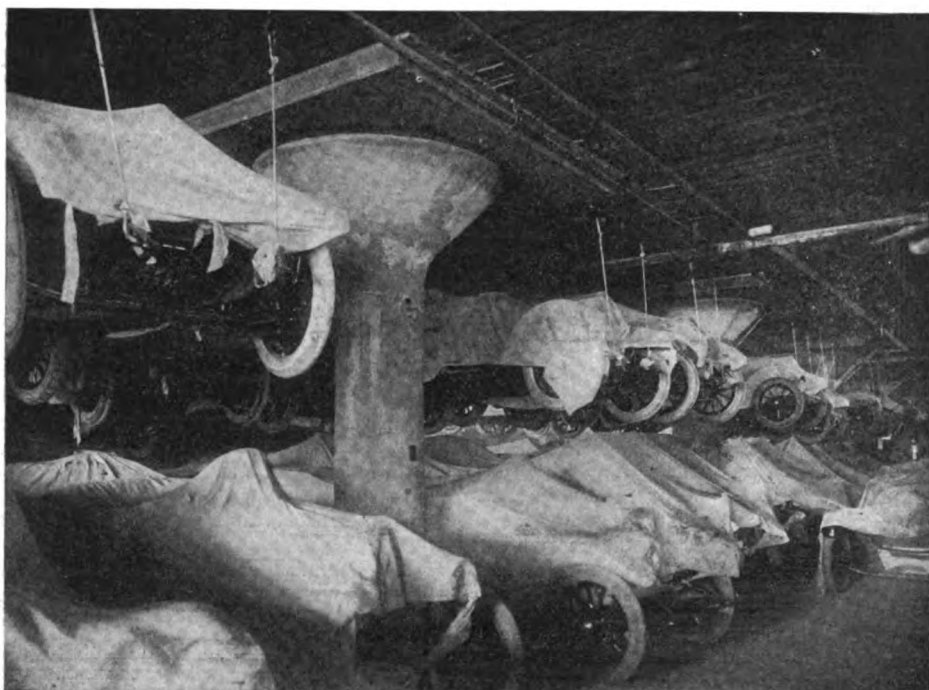
Before going more into detail regarding the working of this system, it is



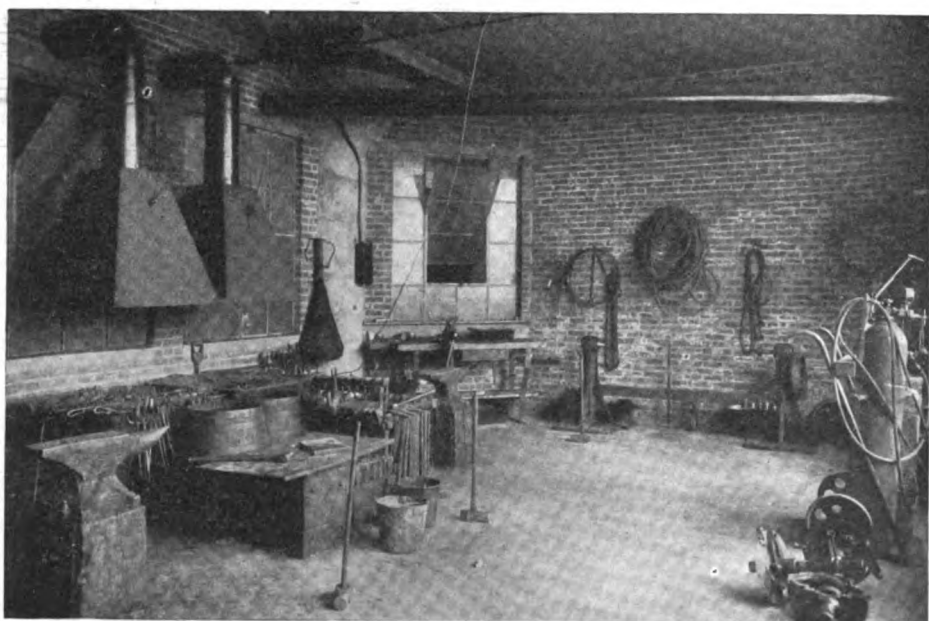
(1).S.—Quick service.



Where employees and customers alike obtain both parts and accessories. This room is at the front of the sixth



The car storage space on the eighth and ninth floors is made to do double duty by suspending cars from the ceiling



A full equipment is found in the blacksmith shop, including centers for straightening axles

necessary to describe the method of handling the customer from the time the car enters the building.

The customer meets a man who is officially known as a shop salesman. There are two of these men. Their duty is to look after the interests of the customer. The customer is his client. This man gives whatever advice or information the customer needs. If repairs are only minor ones, the car is taken to the second floor, but otherwise, the shop salesman summons a tester and has him make a thorough report on the car, after which the customer and the salesman go to what is known as the planning department on the first floor and discuss thoroughly with one of the members of this department just what repairs are to be made and what they will cost.

A full list of the repairs is made out together with the cost of each one and the customer either O. K.'s the list or else crosses off repairs which are not absolutely necessary. The reason for making the different repairs is fully discussed with the customer and what he desires to have done and what he wishes to have left undone, is naturally left to him to decide.

The planning department then consults its schedules and determines just when each job may be done, and the car is sent to the department in which the major amount of the work is to be done. In other words, if the bearings were to be rescrapped, the battery recharged, and the brakes adjusted, the car would be sent to the engine department. Men to do the work on the brakes would be sent from the third floor, where this work is ordinarily done. The battery would be removed and taken to the battery room.

If in addition to overhauling the engine it was necessary to overhaul the axle, then it might be necessary to remove it and take it to the axle department. Or in some cases it might be necessary to wait until the work on the engine was finished and then send the whole car to the axle department.

The planning department can tell by referring to schedule for the different floors exactly when the work on the different parts can be started and when it may be completed.

To insure the completion of work on schedule an inventory of how work is progressing is taken twice each day, once in the forenoon and once in the afternoon and jobs which are behind are speeded up or the reason for the delay is ascertained.

If it is necessary to move a car from one department to another, the planning department must be notified of the change. Otherwise there would be danger of a car becoming lost.

When the work is completed the floor foreman inspects it, it is tested, and then given a final inspection so that there is practically no chance of anything being wrong when it is delivered to the owner. Lastly, it is washed and polished.

There is an inspector on each floor whose sole duty is to watch the workmen and determine whether they are using the most efficient methods for accomplishing the work in hand, and if necessary to

(Continued on page 33.)

Make the Prospect's Attacks Rebound Upon Himself

By Ray W. Sherman

"GEE, but these cars have lots of faults," said George Beckwith, one of the latest of the Reilly salesmen, and Reilly and Tommy Trumbull, the dealer's sales manager, smiled at the tyro's discovery.

"Who said so?" asked Tommy.

"Lots of people say so," replied George, laying out a schedule for his day's calls.

"What do you say when they enumerate these faults?" queried Reilly.

"Gosh!" exclaimed George. "Sometimes I don't know what to say. I just try to skin by the point and talk about something else."

"You don't need to do that," calmly asserted Reilly. "There are few real faults in our cars. There are many things about them that some people don't like, but most of these so-called faults are really selling points. The factory put them there because they found them to be good."

"But what can I do about it?" pleaded George.

"Turn the prospect's argument against the car right back upon the prospect. Make him see that what he considers an objection really is an advantage."

"But how do I do it?"

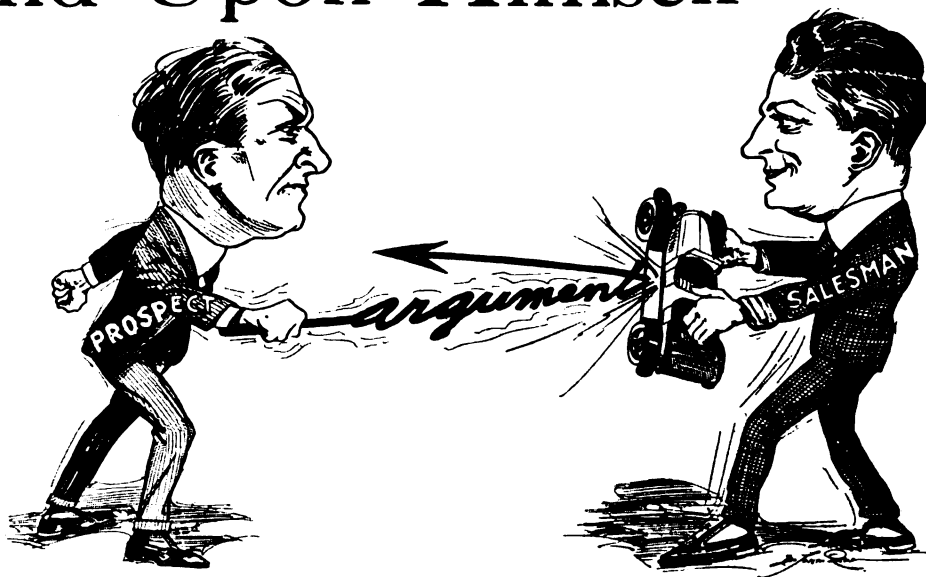
"Well, what's one of these objections?" asked Reilly.

"The car's too light. It won't hold the road."

"All right," Reilly began. "Why is the car light? Let's consider that first. It is made light because light cars take less power, less gasoline, cause less tire wear, cost less to build and less to run and are a more satisfactory and economical proposition all around. Isn't that reason enough why a man should want a light car?"

"It seems to me it ought to be," admitted George, "but still that's one of the objections I run up against."

"Well," Reilly replied, "when a man says the car is too light you should say: That's just the reason why you should buy it. You don't want to cut down your gasoline mileage, do you? Then you must have a light car. You don't want big tire bills, do you? Then you must avoid a heavy car. You don't want to pay a high price for the car when you buy, do you? Then you must not buy a car in which there is more weight than is necessary. And as for its holding the road: Do you expect to drive faster than fifty miles an hour, Mr. Prospect? If he has a grain of sense in his head he'll say No. And then you say: We have run these cars up to fifty-one and fifty-two miles an hour on the roads around Callawassa, and they have held the roads perfectly."



"Now, after you have taken the man's argument and turned it back upon him in that way, what can he say? What he thought was an objection really is a reason why he should buy the car. He has been talking about something he didn't know much about. He had heard someone say that light cars don't ride easy and won't hold the road. But that's all he knew about it. He never stopped to consider that there are untold advantages in having a car light and that if light-weight was a fool construction we wouldn't build it."

"You can take most of the objectors to our car and handle them the same way. Suppose a man says he wants a car that holds more than five people. Unless he has a family that needs a seven-passenger car he's talking through his hat and doesn't know it."

"The great, big demand among buyers is for a five-passenger car—and that's why we build one. If you KNOW this man hasn't a seven-passenger family—which is one of the things you SHOULD know—you can say to him: But, Mr. Prospect, that is the very reason you will be pleased with this car! Then you can go on and tell him all about how a bigger car than he needs will cost more to run because he is dragging around excess weight."

"Tell him a railroad train doesn't drag along more cars than it needs and that the man who goes after a quart of beer doesn't carry a gallon can if he can find a smaller can. Get him down to a figure basis and show him how few times he would need a seven-passenger car. The times he has it and doesn't use it he is merely dragging around excess weight, which costs him extra money."

"You see, George, this twisting the argument around isn't so much twisting the argument as it is telling your sales story with a new light thrown upon it."

You could recite the advantages of a five-passenger car till the cows came home and it would be only a matter-of-fact sales story, but when you hold the story up this way it looks to the prospect like correct light thrown on a point on which he had been holding a wrong opinion."

"Some prospects couldn't be handled this way, of course. If a man is set in his opinions and resentful towards over-assertiveness on your part you might antagonize him by making a statement of this kind. You must sort of judge your man, George, and be quite sure you can twist the argument on him. If you miss your guess you may find him coming right back at you with a spear that will hurt."

"I'll watch out."

"This, however, you will find true," continued the dealer. "Hundreds of people have all sorts of ideas on cars and have to be corrected and sold before they buy. People like to talk about cars and show off what they think they know, and some of them work themselves into ideas for which they have no sound foundation. And then they come into a salesroom and attempt to tell what's what about cars."

"It's this class of gentleman who is most easily twisted around. Once you show him he had the wrong slant on things and that there are more reasons for than against your sales point he loses confidence in what he was pleased to term his motor-knowledge and becomes easy picking for you. Generally he wants the results that are obtained through the point he has been criticizing, but he hasn't known enough about it to realize the true situation."

"Just twist the spear around on these would-be warriors a couple of times and you can beat them with their own weapons."

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Dimmers in New York

Editor Motor World: There seems to be a lot of uncertainty regarding what is required by the State law as to anti-glare lamps in New York. Can you supply the desired information?

Also at what time must the lamps be so equipped?

I was informed by an agent a few days ago that a bill has been introduced requiring colored glass. Have you any information concerning such a bill?—Otis Doty, Canisteo, N. Y.

Answer.—The only provision in the New York State law regarding lamps at the present time is the following:

Every motor vehicle shall "during the period from one-half hour after sunset to one-half hour before sunrise display at least two lighted lamps on the front and one in the rear of such vehicle, which shall also display a red light visible from the rear. The rays of such rear lamp shall shine upon the number plate carried on the rear of such vehicle in such manner as to render the numerals thereon visible for at least fifty feet in the direction from which the motor vehicle is proceeding. The light of the front lamps shall be visible at least two hundred feet in the direction in which the motor vehicle is proceeding."

A number of cities like New York have ordinances which prohibit glaring headlights. These are too numerous to set out here. Regarding the bill which you think has been introduced in the New York Legislature, I would say that I think there has been such a bill introduced in the past year. If any enactment is passed concerning lamps I will see that a copy is printed on this page.

Rentor Is Responsible

Editor Motor World: If I rent my car with my number plates on it without a driver and an accident occurs, will you please tell me if I am liable?

If so, are there any arrangements which can be made so that the responsibility will come on the one who hires?—Harry E. Balisdell, Winchester, Mass.

Answer.—The courts have uniformly held that if an accident occurs by reason of the negligence of the driver of an automobile, the owner is not responsible for the injuries caused through the negligence, unless the motor vehicle was

being operated in the service of the owner. The mere fact that an owner's number plates may be on a car when an accident occurs does not mean that that will make the owner responsible. Of course, the chances are that the injured party would sue the person in whose name the car was registered, in which event you would have to show the driver was not acting for you and was not in your service. The best thing you can do to relieve yourself from liability when you rent a car is to do just what you are apparently doing—rent it without a driver.

Transferring a Contract

The Supreme Court of New York has held, in a recent case, that although a motor truck manufacturer may make a contract with a person for the sale of motor trucks which contains a clause that the contract is not to be transferable, a party to whom the contract is transferred may, notwithstanding that provision, sue the manufacturer for commissions if after the contract has been signed the manufacturer deals with the new party as its agent.

On October 13, 1914, a motor car manufacturer entered into a written agreement with a man by which he had the exclusive right to sell its motor trucks in the counties of Erie, Niagara, Genesee and Wyoming. The man made a deposit of \$100 which was to be returned either when the contract expired or was cancelled. One clause of the contract provided: "It is understood that this contract is not transferable in whole or in part."

About 10 days after the contract was made, the man took his son into business with him, and notified the manufacturer. The latter printed the new firm name on some of its printed matter and folders, and thereafter dealt with the new firm just as it had with the father who had signed the contract.

Thereafter the company cancelled the contract, and the agent sued to get back the \$100 deposit he had made and also commissions and charges due him.

The manufacturer contended that the new firm could not recover these amounts because the contract was made with him individually.

The Court held otherwise, however, saying that the evidence showed that the

manufacturer had accepted the new firm as the persons with whom it would deal under the contract and for that reason the new firm was entitled to recover from the manufacturer the amounts due under the agreement. *Lobee vs. Denby Motor Truck Co.*, 163 New York Supplement, page 951.

Garageman's Responsibility

Editor Motor World: Kindly inform us what responsibility a garage owner assumes when he rents spaces for garage purposes only. Is he liable for damage, or losses by fire, theft of cars, theft of robes, tools, etc., left in car, etc., etc.? Also advise what the garage owner has to do in order to protect himself against damage suits for such reasons.—Automobile Supply Co., Inc., Wilmington, Del.

Answer.—As a garageman only holds property to care for it so long as the owner wishes him to, and to then redeliver it, he is only bound to use ordinary care and prudence according to the circumstances in storing the property. If he does this he will not be responsible for the loss of a car or personal property in it through theft.

If the owner does not call the garage keeper's attention to the fact that he is leaving robes, tools, etc., in the car and the garage keeper does not consent to leaving them there, he is not responsible for their loss. Of course, if property is lost the garageman must show that he used reasonable care to protect it while it was in his possession.

As to loss by fire, a garageman is not bound to pay damages like an insurance company, and if a claim is made on him he need only show that he used reasonable care to protect the property from fire to relieve himself from liability. What reasonable care is will depend to a great extent on what other garage-keepers in his vicinity do to protect the same kind of property.

It is always a good plan to put up notices such as "Not responsible for loss in case of fire" and "Not responsible for personal property unless checked at the office." In the case of personal property, some place to check these articles should be provided, then if the owner does not bother to check them after the garageman gives him notice he must pay the loss himself if they are stolen, etc.

Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge, but be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a two-cent stamp and your correct name and address. Write plainly.

Battery Man Tells How to Succeed In Battery Business

EDITOR Motor World: The writer has been in the battery business for the last 7 years, during which time he has accumulated knowledge which would be valuable to anyone entering the same business.

I attribute the success I have attained to hard work, service and legitimate business principles. These applied to any business will spell **SUCCESS**. When I started in the business, the battery was only in its infancy, and there were only a few people that knew how a battery was constructed. From year to year they were improved and to-day we have one that will almost stand any kind of handling. As the battery advanced, we had to keep right with it in equipment and shorter methods of doing the work. By using our brain in several instances, we are able to reduce labor more than half, which is a big item nowadays. I also try to get my men to turn out a piece of work a little better than the one previous and in that way they put more thought into their work, which eventually will mean a higher grade of work.

As to advertising or getting more business, we try to make our work and service our biggest advertisement. As my business is local I use different local advertising schemes from time to time, and by this method have been able to build up a nice business and also have lots of satisfied customers, which is a big asset to any business.

The first problem, and also the most serious one, is what method of charging should be installed, that is, changing the alternating current to direct current. To give your customer's good service and make the most money you must choose the best method. There are several methods, such as the mercury arc, which is objectionable, due to the fact that the tubes burn out too often and any little blink or interruption of the current will extinguish the light. There must also be at least 10 amps. passing through the tube or else the light will not stay lighted.

Another method is to use direct current, if it can be secured from the plant, but that coming in at 110 volts or more would have to be reduced by resistance, and unless there is a sufficient number of batteries this method would be expensive

in consumption of current. It would require at least 14 6-volt batteries in series to charge efficiently, otherwise the current would be used up in resistance which is wasted energy. Then again by connecting so many batteries in series, one is bound to get a bad connection at one of the terminals, which will keep the circuit open until a better connection is made.

I have found, from experience, that the best method to use is a direct-connected motor-generator set.

A battery should be given a tapered charge, or, in other words, the charging rate should be gradually decreased as the battery becomes charged. This is taken care of by the generator, which was designed to do this automatically.

It is advisable to have a double system; by that I mean, at least two motor generator sets, so as to be always prepared in case some trouble develops with one of the sets. Also some days you will have more batteries coming in, and if your load is light you can put it all on one set, which will give a much higher efficiency than operating a larger set at one-half its capacity.

In addition to the above suggestion I would say to the man going into the battery business and those who are already in the business in a small way and wish advice, choose a good location, keep your place attractive, study the business so that you can do better work and give better service than your competitors, give close application to your work and always be polite and obliging and you are sure to succeed.—O. A. Leutwiler.

Additional Reasons for Galloping Engine

Editor Motor World: I read with much interest the article about a Model 83 Overland and thought that I would jot down a few little points that might help to locate the trouble, as I have had experience on Overland motors for over 6 years. (See Why an Engine Gallops, April 18, page 20.)

1. Kind of carburetor, whether Stromberg or Tillotson. If Stromberg a little richer adjustment would sometimes take care of the trouble. Have had but little trouble with the Tillotson if all joints were tight. Be sure hot air pipe is secure and in right place.

2. Kind of spark plugs, Splitdorf or Champions. If they were Splitdorf and they were not set to Splitdorf gage, .020, would sometimes cause the trouble. Set Champions same distance, sometimes a little wider gap helped a good deal on either plug.

3. Be sure magneto points were clean and set to gage .020.—R. H. Pollard, Derby, Conn.

1912 Buick Racer

Editor Motor World: Kindly illustrate a converted 1912 model No. 35 Buick four passenger touring car made into a speedster with a turtle back.

Would you suggest that I change the gear ratio so that car would be capable of making fifty miles per hour?—Norman G. Johnston, Pitcairn, Pa.

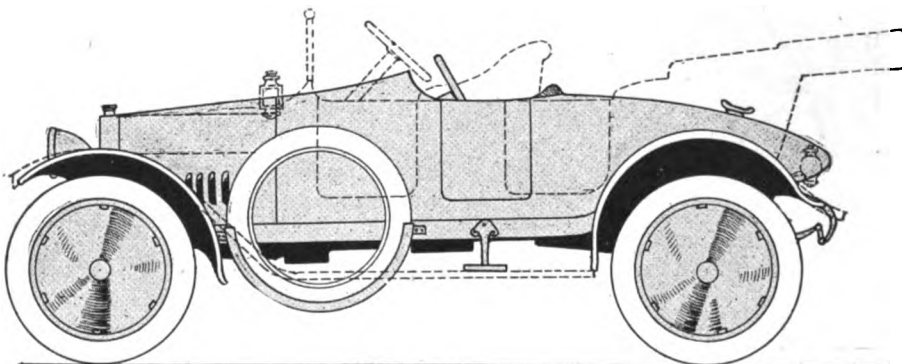
Answer—Herewith is a sketch of a speedster model such as you desire.

It is not necessary to change the gear ratio in order to obtain a speed of fifty miles per hour. If you put the car in perfect mechanical condition and look carefully to all adjustments, you will have no difficulty in running at this speed.

REMOVING STEERING KNUCKLE PIN

Editor Motor World: How are the steering knuckle bolts fastened in the axle of the Maxwell 25, 1916 model?—Lloyd Leeds, Sullivan, Ill.

Answer—The steering knuckle bolt in the Maxwell 25, 1916 model, is known as the steering knuckle pin and is forced in from the bottom. It is a taper fit in the I-beam axle.



Strikingly attractive racing streamline body for 1912 Buick

A Department of BETTER MECHANICS

No. 24

Simplified Directions for Welding

Paint and brush do not make an artist. A welding outfit will not make a welder. Experience and practice are essential. This article is not intended to be a text of the welding trade. It is doubtful if any article could serve as one. But it does tell some essential points of successful automobile repair welding.

AN oxyacetylene welding outfit is almost a necessity in the modern repairshop, as by its use parts may be reclaimed at a low cost that otherwise could not be repaired or replaced. In addition to the welding outfit, certain equipment is essential to successful practice.

THE WELDING TABLE

A flat cast iron plate, Fig. 1, about 3 ft. wide, 4 ft. long and 1 in. thick, supported on a welded angle iron frame, forms an excellent welding table. The table should be about 28 in. high, planed smooth on the upper surface, and braced by ribs on the under surface, to prevent warping. These ribs should be in away from the edge of the plate, so as not to interfere with any clamps that may be used to hold the work.

MISCELLANEOUS FITTINGS

The assortment of blocks, clamps, braces and mandrils used in welding is

almost infinite, the size and shape depending on the nature of the job to be done. Fig. 2 shows one of a set of cast iron V-blocks that will cover a wide range of work. The legs should have various thicknesses and lengths, so as to fit into corners, or hold the work at any required height.

An angle plate that may be clamped to the welding table, and to which the work may be bolted, is essential, Fig 3.

Fig. 8 shows a method of holding aluminum castings so that they will not warp while being welded. Angle irons, mandrils and clamps are necessary. All such equipment should be saved, as it may be readily adapted to many similar jobs. In a short time the welder will find that he can readily secure the required brace from the stock so acquired.

PREHEATING FURNACE

Many of the botched welding jobs, particularly on engine cylinders, are caused

by lack of or improper preheating. Small jobs may be preheated by the welding torch, a blow torch or in the forge. Larger jobs require a special preheating furnace constructed on the welding table, or if the work is too large, on a concrete floor.

Fig. 5 shows a small furnace for automobile cylinders. After a layer of fire-brick has been placed on the table, the cylinder is supported on several bricks, and the walls of the furnace built up around it. Half bricks are used for the second layer from the bottom, so that openings are left for the air supply.

The fuel used should be the best grade of hardwood charcoal obtainable. This burns freely, without smoke or odor, requires no forced draft, and does not injure finished surfaces. It is only necessary to pack it around the piece to be heated, to light it, and let it burn at will. When in use the top of the furnace should be covered with a sheet metal plate.

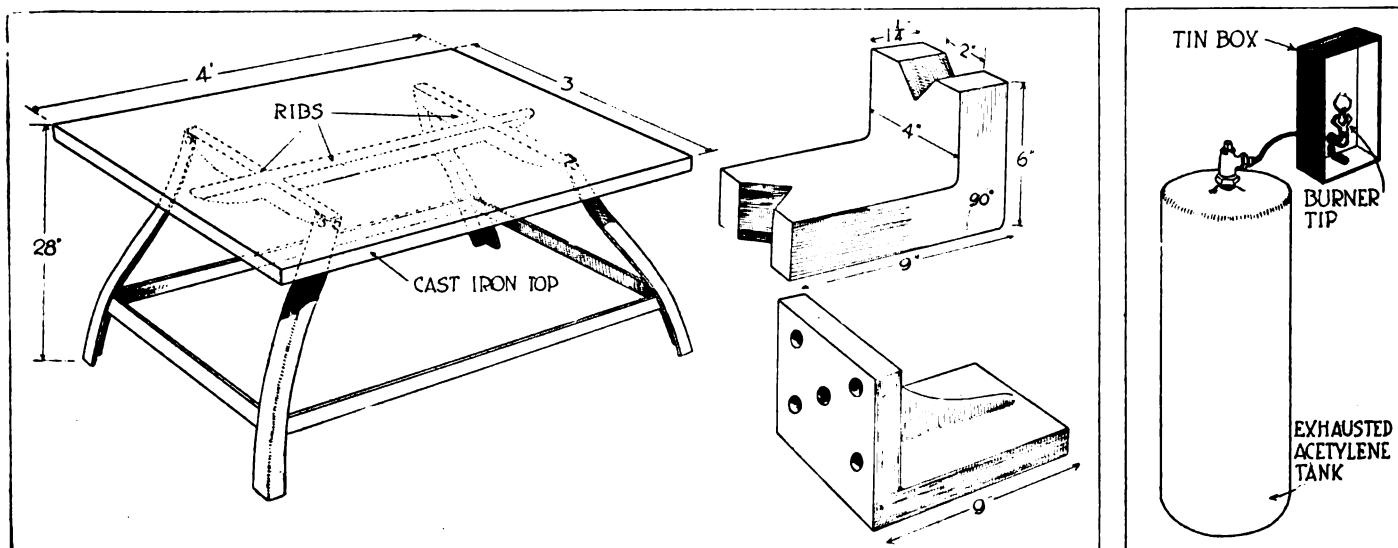


Fig. 1—Left—Welding table with cast iron top and angle iron legs. Fig. 2—Upper—Cast iron V block. Fig. 3—Lower—Angle plate. Fig. 4—Right—Pilot light supplied by exhausted acetylene tank

PILOT LIGHT

When the gas in the acetylene tank becomes too low for welding purposes, there is still sufficient gas for supplying a pilot light, Fig. 4. This light comprises simply a gas tip, connected to the tank opening by a brass tube, and is left lighted throughout the working day. The flame is used to light the welding torch, without the necessity of lighting a match each time.

WELDING TANK TRUCK

About the first job the welder should attempt is to make a welding tank truck. Its use permits the outfit to be moved from one part of the shop to another without difficulty, Fig. 6.

ADJUSTMENT OF FLAME

The welding flame is the white inner cone at the tip of the torch, Fig. 9. When properly adjusted it is about three times as long as it is wide, and is sharp and distinct.

All adjustments should be made to bring this condition. First the acetylene is turned on and lighted, after which the oxygen is turned on. The gages should then be set at the pressure required for that tip, as stated by the manufacturer. The acetylene is then throttled down, until the welding flame is a well defined and distinct cone. As the torch heats, and the work progresses, further adjustment may be necessary.

Nearly every operator has his own particular method of obtaining the correct welding flame, but all start with an excess of acetylene, and throttle down until a distinct inner cone is obtained. All adjustments on the regulators should be made while the torch is lighted. In shutting off, the oxygen should be first turned off, and then the acetylene.

GENERAL INSTRUCTIONS

It is important that the right tip be used for the job in hand. The manufacturer's instructions should be followed by the beginner. The choice of tip depends upon the thickness of the metal, and as small a tip as possible should be used for the sake of economy, yet the flame must be large enough to provide the required amount of heat.

Regular motions of the torch are essential to prevention of formation of craters in the weld, and to give an even distribution of heat. Fig. 7 shows the three motions commonly used by weld-

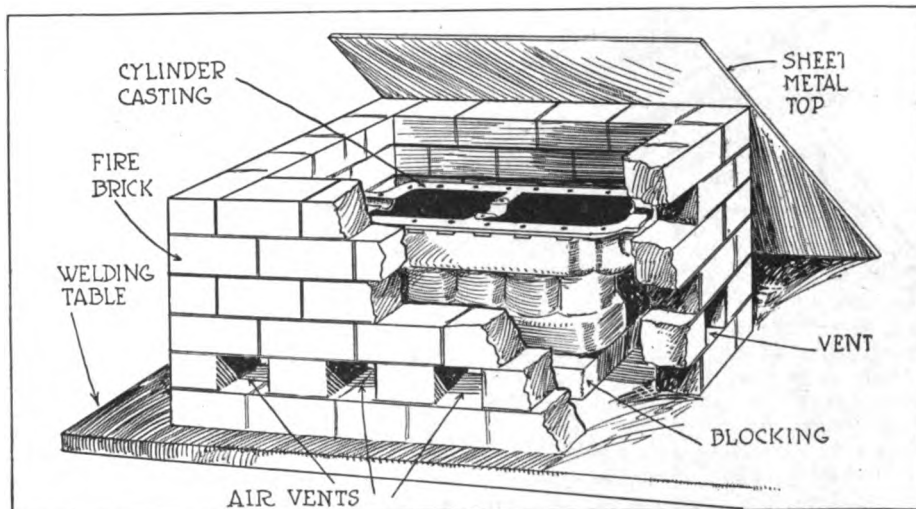


Fig. 5—Brick oven for preheating work. The work should remain in the oven while the welding is done

ers. No. 1 is styled the *figure 8*, No. 2 the *zig-zag* and No. 3 the *spiral*.

The latter is especially adapted to welding thin sections, but on the whole the choice of motion depends upon the individual operator.

No definite rule can be given for holding the torch and welding rod, as these vary with the jobs. However, Fig. 7 shows the method that is commonly used. From this position the flame may be used almost as a brush, to shape the molten metal. The welding rod may be held in the edge of the flame until the line of weld is heated, then quickly inserted into the welding flame and the line of weld and rod brought to the molten condition at the same time.

WELDING CYLINDERS

Many repairshops will not touch repairwork on engine water jackets be-

cause they claim that the repair is not permanent or successful. In nine cases out of ten the cause of the trouble is lack of or improper preheating.

With the exception of the simplest repairs on the cylinder, such as replacing a broken lug, preheating should always take place. The preheating furnace and coke fire should be used, as then the cylinder is heated evenly, all the way through.

The amount of heat necessary cannot be definitely predetermined. Usually, by packing the cylinder in hardwood charcoal, lighting the charcoal in several places and letting it soak for a couple of hours, the cylinder will be heated sufficiently. With few exceptions the cylinder should never be brought to a dull red heat.

As imperative as the preheating is the necessity of keeping all parts of the cylinder covered, and protected from drafts, while the weld is being made. This may be done by covering the cylinder with asbestos sheet, and working through a small opening. *The cylinder should be left in the furnace while the welding is being done.*

When the welding is finished, the cylinder should again be covered with a layer of fresh charcoal and allowed to heat, soak and then grow cool at will. This allows all the strains formed by the weld to adjust, and the slow cooling prevents the formation of other strains.

If then the cylinder cracks it will be

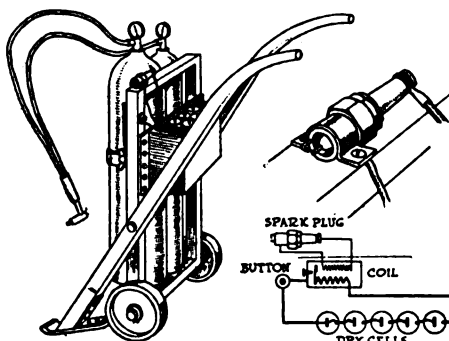


Fig. 6—Welding tank truck with spark plug for igniting flame

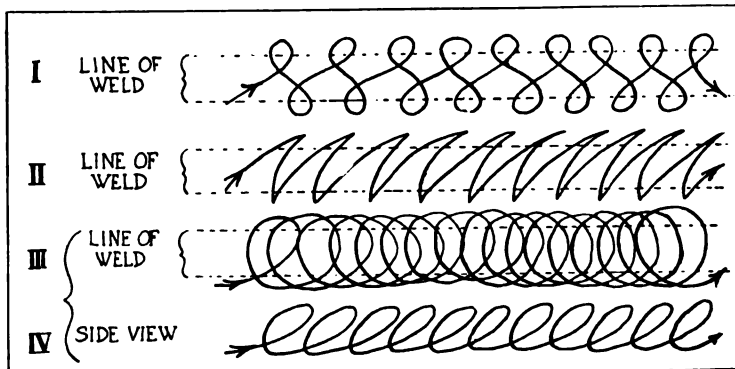
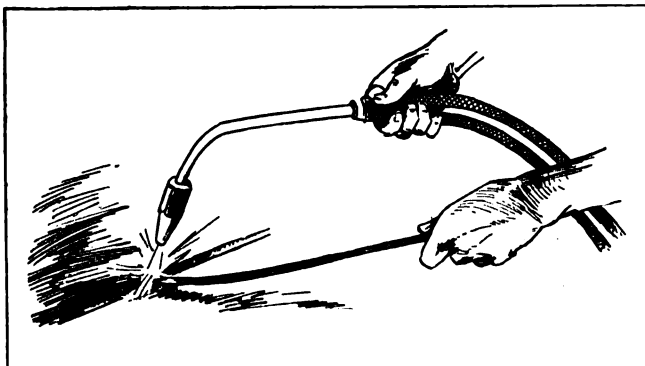


Fig. 7—Correct method of holding torch and motions which may be used in welding

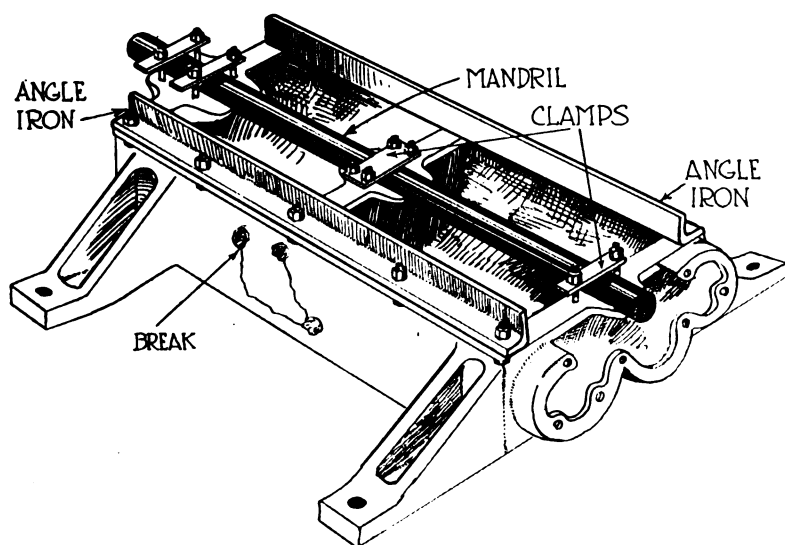


Fig. 8—How to stiffen crankcase to prevent warping

necessary to preheat to a higher temperature and proceed with more care in welding. Any cylinder can be successfully welded if preheated to the proper temperature, not subjected to drafts and allowed to cool slowly.

When placing the cylinder in the preheating furnace it should be so placed that the part to be welded is at the top, and may be reached without moving the casting. The piece to be welded, if loose, should be set in place before the start of the preheating, and should be brought to the same temperature as the rest of the casting.

Many mechanics prefer not to bevel the edges of the parts to be welded, using the torch to burn the required bevel. However, if the part to be welded on the cylinder is over 3/16 in. thick, it should be beveled all the way through. This may be done by grinding or with a chisel, and each side of the bevel should be 45 deg. When both sides of the crack can be reached by the welding flame, the bevel should be made from both sides to the center.

It is foolish economy to attempt to use an inferior welding rod or flux. Both should be purchased from a reliable manufacturer, and should be the best possible grade that can be obtained. Otherwise the work cannot be done as quickly, and the saving in cost of the material will be eaten up by the extra amount of gas consumed. Besides, the weld will be poor.

Small particles of dirt or slag often catch in the line of weld, and will later form a leak. During the welding these may usually be noted as intensely white spots in the molten metal. The welding rod may be used to bring them to the surface.

Cast iron is the most easily welded of all metals, and the chief difficulty has been in the lack of proper preheating and slow cooling. Care in preheating and slow cooling are essential to successful cylinder welding.

ALUMINUM CASTINGS

There are two methods commonly employed in repairing aluminum castings, the puddling process and the true welding process. The latter is the best and is the one to be recommended.

In this process pure drawn aluminum wire is used for a welding rod. The wire flows better under the flame and leaves a softer, more ductile weld. A flux should be used, and the one chosen should be the best that it is possible to obtain.

Crankcases, transmission cases and the like should be preheated, unless the weld is to be made on a projecting lug or arm. In most cases the amount of preheating is very slight, consisting merely of warming the casting up until it is little more than hand warm. In certain cases, where the weld will not stay or the casting will warp, extreme heats are applied.

Fig. 8 shows a method of bracing a crankcase so that it will not warp during the preheating and welding. Angle iron braces are bolted to the sides, and mandrils are clamped in the crankshaft and camshaft bearings. If the case is to be completely preheated, the babbitted bearings may be saved by replacing the mandrils by a piece of iron pipe and running cold water through the pipe, keeping the bearings cool.

A blow torch may be used to preheat the casting, and care must be taken not to melt the aluminum. When the casting has been heated so that a piece of solder will melt on touching it, the casting is ready for welding. It is to be understood that this preheating is not always necessary. In fact, a skilled welder will do most jobs without preheating. But it is safest for the beginner to preheat.

Scarcely any preparation is required to make the break ready for welding. The edges of the break are brought as nearly flush as is possible and clamped

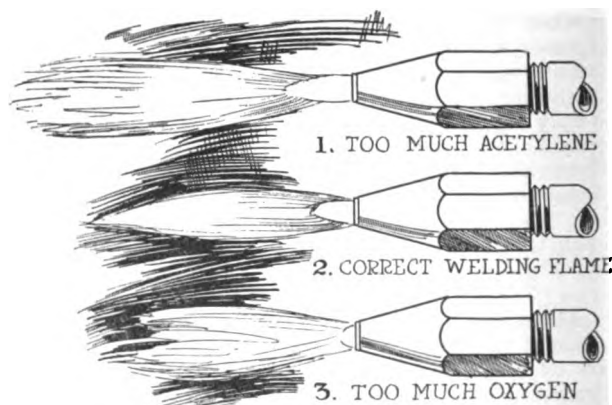


Fig. 9—The three conditions of the flame. Top—Too much acetylene makes the inner cone ragged and indistinct. Center—Correct frame. Bottom—Flame with an excess of oxygen. All adjustments should start with flame No. 1, at the top, and not with flame No. 3, at the bottom

in position. This is shown at A, Fig. 10. The next step is to make a pocket or groove along the line of the break.

The flame is adjusted with a slight excess of acetylene and passed along part of the line of break, and a small portion of each side brought to a molten state. The drawn wire aluminum welding rod is heated, dipped in the aluminum flux and a small amount of the flux run into the groove, as it is formed under the flame.

When the groove is formed the end of the welding rod is melted and worked into the groove, the new metal and the old flowing together and forming a unit.

Much depends upon the manipulation of the torch. The welding flame must not play too long upon one spot, or the casting will fall through. Yet the union between the new and old metals must be perfect.

After the groove is filled to a little more than level, the surface may be smoothed up with the torch and allowed to cool. If a smooth surface is necessary, the line of weld may be finished with a file or machined.

MALLEABLE IRON

It is difficult to weld malleable iron, using *weld* in the true sense of the word. An effective repair, however, may be made by using a drawn Tobin bronze welding rod instead of a cast iron welding rod. The flux to be used is the same as is used for brass or bronze.

In making the weld the sides of the break are brought to a heat somewhat higher than a bright red heat, the drawn Tobin bronze rod heated, dipped in the flux, melted and run into the break. At the bright red temperature the iron and the bronze form an alloy that makes an exceptionally strong union, though one that differs in appearance from the rest of the part.

The malleable iron must not be melted. To do so would change its form and cause it to be no longer malleable. The use of Tobin bronze renders melting of the iron unnecessary.



Fig. 10—Three steps in welding sheet metal: A—The edges of the crack are brought flush. B—A pocket is made. C—The metal is added

Repairshop Shortcuts

*From The Motor
World Roadman*

(No. 1194) EXTENSION LAMP

The bench lamp may be swung and locked in almost any position above the bench. The extension is in three sections, each made up of two strips fastened together at the ends by bolts and thumb screws. One end of the extension is fastened to a wall bracket, the free end carrying the lamp and shade. Horizontal adjustment is effected by swinging or pulling the extension to the desired position, and the lamp may be raised or lowered to the desired height.—F. S. Rowan, Buhl Auto Co., Jackson, Mich.

(No. 1195) BATTERY CHARGING CONNECTION

Perhaps the easiest method of attaching charging leads is by wedging them into terminal openings by wooden plugs. The wires may be used indefinitely, as they are not bent or kinked, and the contact on the post is good. A light wooden mallet should be used to drive the plug, and care should be taken not to injure the terminal.—George Storm, Reliance Auto Co., Jackson, Mich.

(No. 1196) RADIATOR TESTING

Radiator testing by air pressure is liable to place a dangerous strain on the tubes and dipping in water is necessary in order to locate the leaks. By using city gas these difficulties may be avoided. The inlet, outlet and filler opening are plugged and the city gas passed into the radiator through the overflow. When a lighted match is passed over the tubes, the location of any leak is immediately shown by a flame.—Roberts Bros., Riverside Garage, Medford, Ore.

(No. 1197) FORD ENGINE REMOVAL

To remove the Ford motor from the frame without lifting the front of the body, take a hacksaw and cut out a square 1 in. by 1 in. on each side of the dash.—C. G. Teal, McFarlan, N. C.

(No. 1198) SPEED WRENCH

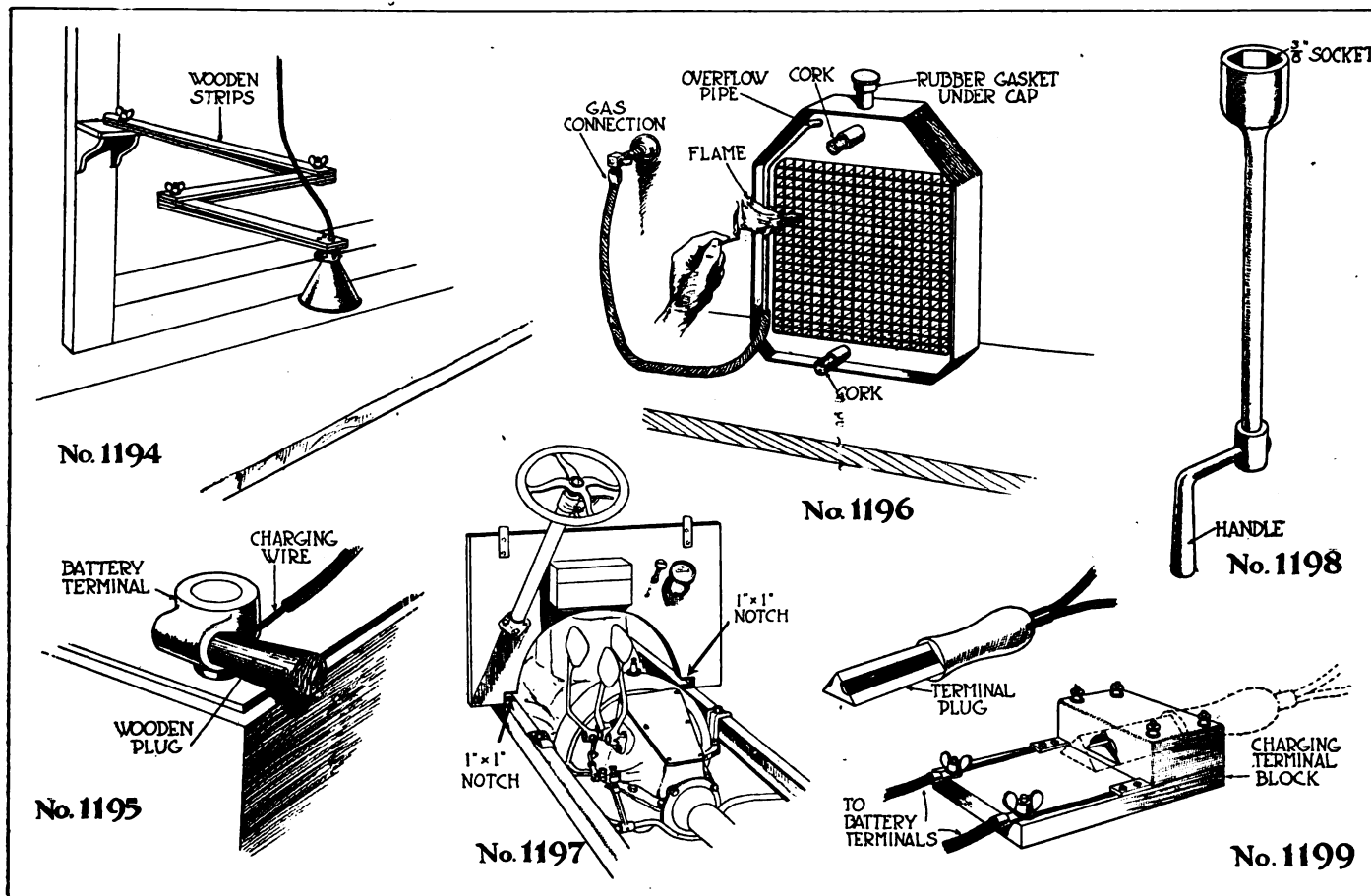
By bending the handle of an ordinary socket wrench, so that it forms an L with the shank, a crank is formed that permits nuts to be removed or replaced with great rapidity. This type of wrench is especially adapted to work on the crankcase, the one shown being used on the Cadillac.—George Storm, Reliance Auto Co., Jackson, Mich.

(No. 1199) CHARGING BLOCK

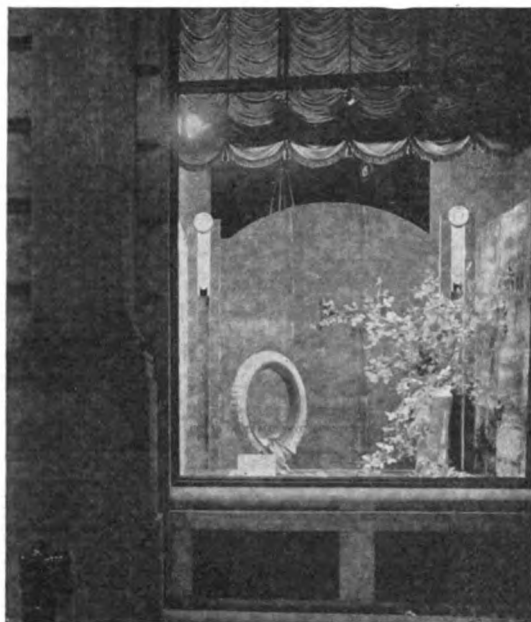
This block permits the charging current to be reversed at will, so that no attention need be paid to which is the positive or negative pole when making the connections. It is a charging block from an electric car, mounted on a wooden base, and provided with binding posts, to which the charging leads to the battery are attached. To reverse the current, it is only necessary to remove the terminal plug from the charging block and insert it from the opposite side. When heating starts the plug may be easily removed, breaking the circuit and allowing the electrolyte to cool off.—Henry Fowler, Lewis-Allen Co., Jackson, Mich.

GASOLINE FEED LINE REPAIR

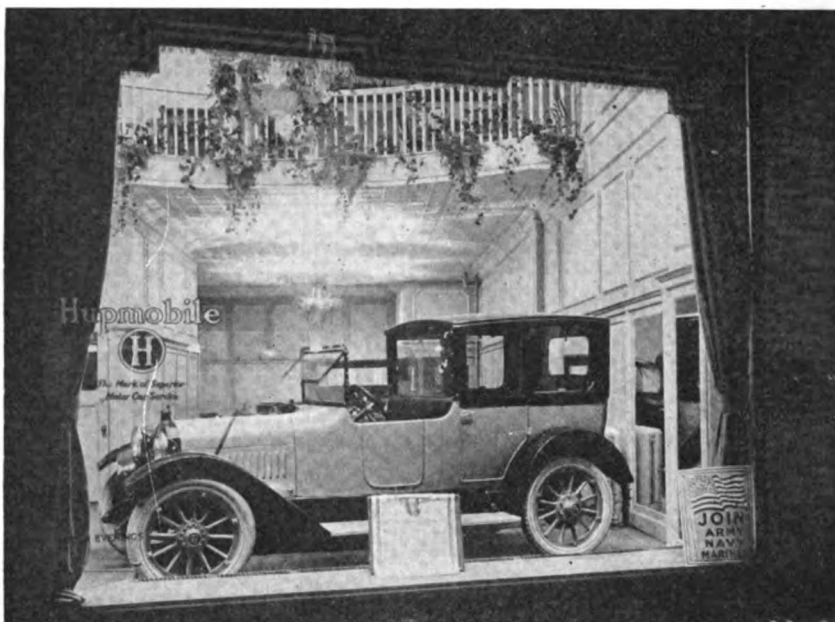
A broken gasoline feed line may be quickly repaired by scraping the tube near the break, and winding it for 1 in. each side with clean copper wire. The wire should then be heated, covered with soldering flux, and sweated together with solder. A solid sleeve is thus formed that makes the pipe stronger than originally.—James McIlvrid, Jr., 907 Communipaw Avenue, Jersey City, N. J.



Night Time Is Display Time



The United States Rubber Co., on Broadway at West Fifty-eighth Street, brightens the "white way" with a series of these windows, each brightly lighted and pretty



Charles E. Riess's Hupmobile store, on Broadway, near West Fifty-seventh Street, stands out at night like a headlight before dimmer laws were passed. The sign says "Open Evenings," and the place sure looks it. A trifle patriotic, too.



The picture over here on the left isn't a department store—it's the Auto Supply Co., on Broadway at Columbus Circle. The store sells all kinds of duds for women—and men too—and the window is one of the secrets of the company's growth

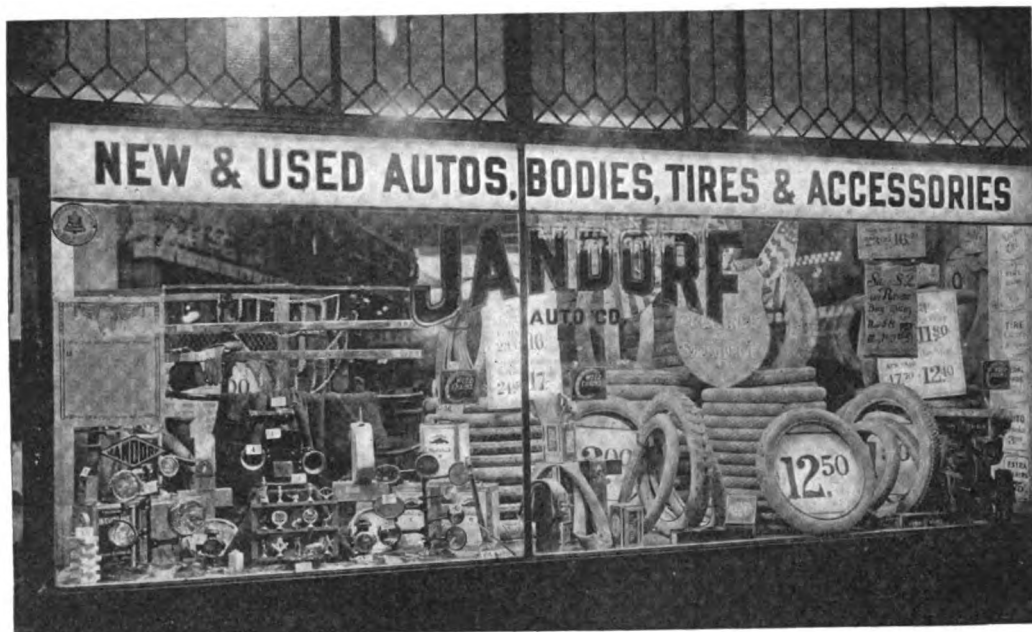
The Auto Supply Co. also sells a lot of such articles as lunch kits, fire extinguishers and all sorts of things a motorist might never think of if he didn't see them staring him in the face on his way home when he "works late at the office"



On Gotham's Great White Way

The Jandorf Automobile Co., 1764 Broadway, used to be a used-car house, but now it stands out along the Great White Way as a regular accessory store as well

Note in all these pictures that the lights themselves are not visible. This is the proper way to illuminate. Lamps that stare one in the eyes are old style and can't begin to compare with the modern arrangement. Look around town some night and study the difference



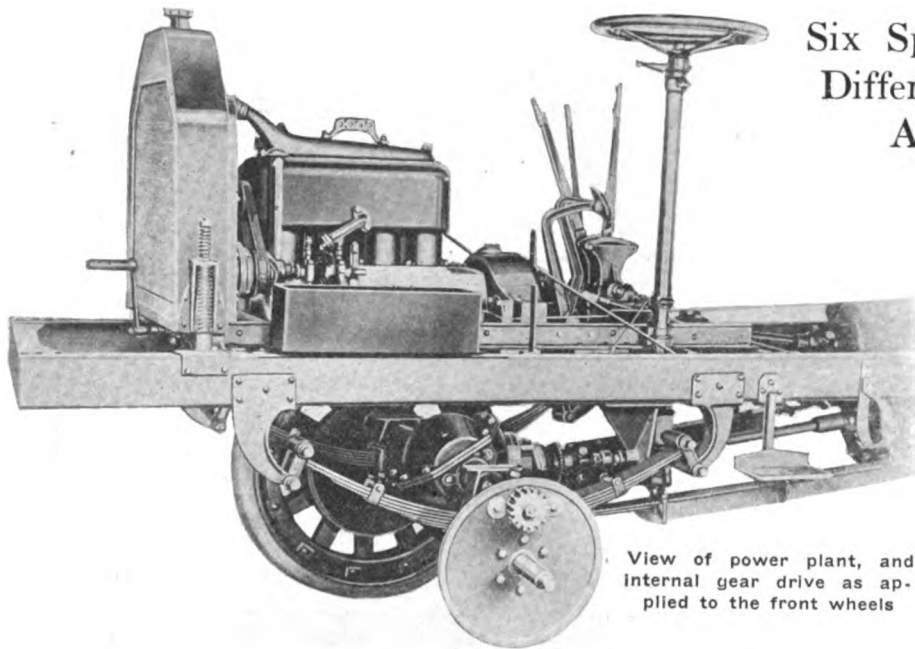
This New York and Brooklyn store is in New York, and helps keep the White Way white by dazzling away every evening at 1717 Broadway. One look tells the passerby what it's all about



The Times Square company goes in strong for light—very, very strong. Also, for strong light. It is also strong on the price subject, and evidently the lettering man has to go it pretty strong

Duplex Drives Through Four Wheels

Six Speeds Forward—Self-Locking
Differentials—Internal Gear Drive
Axles—Capacity 3½ Tons



View of power plant, and internal gear drive as applied to the front wheels

THE outstanding feature of the Duplex four-wheel drive truck is naturally the fact that power is supplied to all four wheels; but in addition there is a two-speed connection between gearbox and drive shafts, so that there are six forward speeds and two reverse; axles are solid I-beams with drive by internal gear; the differentials are self-locking so that there is no loss of traction through wheel spinning. The clearance is unusually high, 16 in., due to the use of the internal gear drive. Internal expanding brakes are fitted to all four wheels. These, in brief, are the features of the truck, which has a 3½-ton capacity and sells for \$3,600. It is equipped with a 4¼ x 5½ Buda motor and has a unit power plant, including a dry disk clutch.

Power is transmitted from a three-speed positive-clutch gearbox to a double silent chain reduction which carries the power to the drive shafts, front and rear. The main shaft of this reduction is in line with the mainshaft of the gearbox and the countershaft is coupled at front and rear to the corresponding drive shafts, which run to the front and rear axles. Bevel gears are used in the axles and the wheels are driven by pinions on the axle shafts meshing with internal gears on the wheels. One silent chain gives a reduction of 1 to 1 and the other 2 to 1. With the latter the total ratio on low gear is 64 to 1, which is sufficient so that full advantage of the double traction offered by the double drive can be taken. The reduction on second is 32 to 1 and high 16 to 1. With the 1 to 1 silent chain in operation, these reductions are halved.

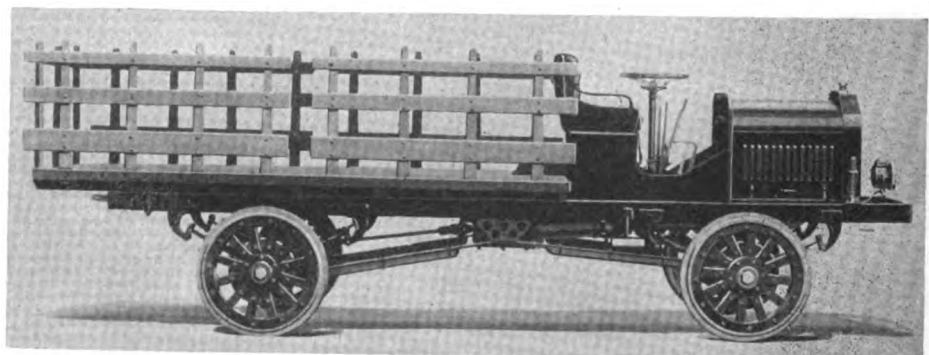
The Duplex Adler automatic self-locking differential is a gearless type con-

taining only six working parts. When a wheel slips the power is automatically thrown over to the opposite wheel. This construction permits full advantage of the four-wheel drive to be taken. If one wheel slips, there are still three left to drive the truck, while with the ordinary type, if one wheel slips the truck is stalled.

DUPLEX DETAILS

Made by the Duplex Truck Co.,
Lansing, Mich.

Capacity	3½-ton
Price, without body.....	\$3,600
Engine.....	Buda
Dimensions	4¼x5½
Clutch	Dry disk
Gearbox	Six speeds
Wheelbase	130 in.



Equipped with stake body. The large lever is for changing the ratio in the chain case

The internal gear drive means that a smaller differential case is required, and this gives increased road clearance, which is 16 in. There is a 4 to 1 spur gear reduction at the wheels, which results in the driving strain on the bevel gears being one quarter what it would be otherwise.

The hand brake acts on the main drive shaft at the rear of the chain case and the emergency brake grips the front and rear propeller shafts.

The spring suspension has shackles at each end. No matter how the truck is loaded the wheelbase is always the same. Grease cups provide the lubrication for the spring shackle bolts, carried in bronzed bushings. Both front and rear springs are 43 inches long, semi-elliptic in type and hung at both ends by shackles to the frame.

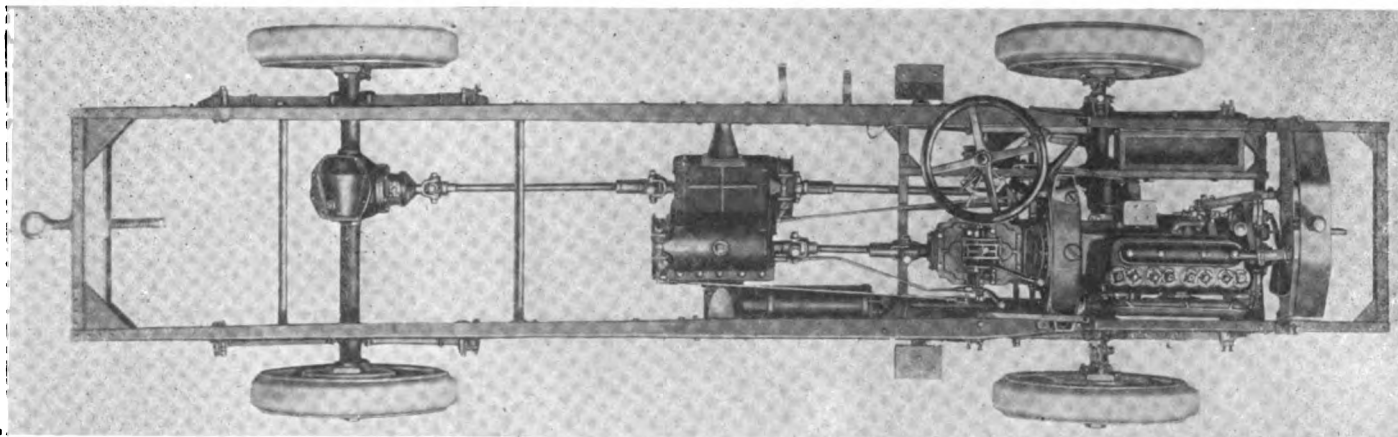
The frame is of pressed steel, channel shape, firmly held at the corners by gussets of boiler steel. It is 18½ ft. long, perfectly balanced and reinforced by four strong cross members.

Special provision is made in the rear frame construction to withstand the abnormal wrenching strains on the drawbar from a string of trailers in tow. The drawbar coupling is cushioned in the strong spring which partially absorbs the shock from quick twisting trailer jerking. The balance of these shocks passes on to the double reinforcement of pressed steel and frame corner bindings of boiler steel gussets.

Wheels are artillery, of second growth hickory and interchangeable. Each weighs 375 lb. and has twelve spokes. Hubs are of malleable iron and interchangeable. The wheels turn on Bower roller bearings.

The steering gear is the Lavigne irreversible worm type.

The engine is a four-cylinder Buda, of



The chain case containing the double reduction is mounted amidships. Both emergency and service brakes are mounted on this case

special design for this type of duty, developing 40 hp. It is combined with clutch and gearbox and is suspended on three points.

The cylinders are cast en bloc, with a 4¼-in. bore, and a 5½-in. stroke. The pistons are high grade cast iron with Leak-Proof rings. Lubrication is force feed and splash, a plunger carrying the oil to the main bearings and timing gears; the constant level splash system throwing oil to the cylinder walls. Capacity is provided for 6 qt. of oil. Valves are 1½ in. in diameter and are made of tungsten steel. The connecting-rods are heat-treated drop forgings with 2½ x 2½ in. bearings. The crankshaft is drop-forged open hearth steel, heat-treated and ground. The size of main bearings is: Front, 2½ x 3½ in.; center, 2¼ x 2¾ in.; rear, 2¾ x 4 in.

Wainwright May Move to St. Louis

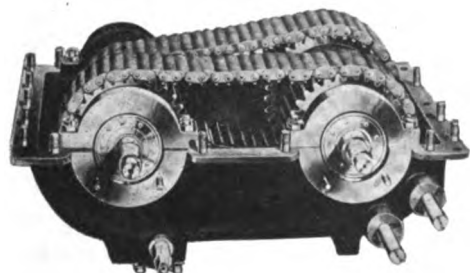
CONNELLSVILLE, OHIO, May 19—The Wainwright Engineering Co. may move to St. Louis and erect a factory for the manufacture of motor car castings. The plant as outlined now would cost \$500,000 and employ 1000 men. The company will be capitalized for \$1,000,000.

Parrett Tractor, Not Barrett

PEORIA, ILL., May 19—In an article in the issue for May 9 describing plowing tests covering 65 acres held near Norton, Ill., the Parrett tractor, made by the Parrett Machine Co., Peoria, was inadvertently mentioned as a Barrett.

Daylight Saving in Pittsburgh

PITTSBURGH, May 19—The Painter-Dunn Co., Overland distributor, is among the first of Pittsburgh dealers to inaugurate the daylight saving plan.



Chain case which supplies a double reduction to the drive shafts front and rear

Starting on May 1, the employees come to work at 7.30 and quit at 4.30, the former hours being 8.30 to 5.30.

Pittsburgh Cole Dealers Gather

PITTSBURGH, May 19—The Cole Motor Co., of Pittsburgh, gave a lunch-

eon last week to over forty dealers at the Pittsburgh Athletic Association rooms. Ed Baker and J. E. Burns came to Pittsburgh for the purpose of addressing the dealers. Chas. Laughner is president and manager and E. L. Schlegel secretary and treasurer of the Pittsburgh Cole Co.

What Every Salesman Should Know

About

Electric Systems

THERE are three ways of installing electrical systems, one in which a combined unit suffices for starting, lighting and ignition; another where two units are used, one for starting and the other for lighting and ignition, or, as is sometimes the case, one for ignition and the other for lighting and starting, and a third in which there are three independent units, one for lighting, one for starting and one for ignition.

The tendency lately has been away from the single-unit and toward the double-unit system for lighting and starting.

The advantages gained by the single-unit system are lightness, compactness and quietness in starting, due to the constant meshing arrangement with the non-stalling installations possible with the single-unit system. The non-stalling feature is in itself given frequently as a notable advantage. On the other hand, the disadvantages claimed for it are, first, complications in the driving connection between the crankshaft and the armature shaft, due to having to rotate at one speed for starting and the other speed for generating.

Another disadvantage is electrical inefficiency, as it is not possible to make a motor-generator as efficient as either a motor or a generator alone. The non-stalling device is often referred to as a battery killer, because when the motor speed drops to a low rate the battery is discharged into the generator and helps to drive the engine, with the result that it is frequently starved.

Another objection is that it is almost

impossible to secure a quiet drive for a single-unit system and to keep it quiet if this condition is secured. Furthermore, the drive itself introduces a number of complicated mechanisms, such as over-running clutches, internal and external gears, etc.

One of the features claimed for the single-unit starting and lighting system is its great accessibility and the fact that there is only one armature to bother with. On the other hand, it is pointed out that the starting motor in a two-unit system is such a simple device that it rarely if ever needs attention, while, on the other hand, the generator when separate can be made extremely accessible and also of much higher efficiency than when combined with the starting motor.

Regarding the matter of noise, it is stated that the advantage really rests with the two-unit system because, although the starting function is noisier on a two-unit system, as soon as the engine starts the starting motor is thrown out of mesh and hence does not give forth any further sound.

On the other hand, the chain often used for driving the motor-generator is noisy at various car speeds. Of late there have been some double-deck systems arranged which are really two units in one housing, one placed above the other. This answers the criticism of weight on the two-unit system, but has the objection that it does not permit of the best possible location of the starting motor and generator, and a compromise has to be made for this reason in both the location and the method of drive.

Editorial Observation

It's a Man's Job

BIG business men of the country are one when it comes to predicting the trade of the immediate future. Howard Coffin, chairman of the Industrial Preparedness Committee of the Council of National Defense, has said that this country is about to enter an era of prosperity. Frank A. Vanderlip, President of the National City Bank, has said that times will be better than ever before and everyone must prepare for top speed production that will utilize every energy.

Without doubt there will be a readjustment of business activities. Quite likely it will be impossible to carry on "business as usual." But business should go on, bigger and better than ever. It will go on in other channels, it will open up fields entirely new.

The \$7,000,000,000 which the government has arranged to borrow from the people will not be taken out of hundreds of savings banks and hidden away in the vaults of the United States Treasury.

It Will All Be Spent Here

It will be spent. Every last nickel of it will be spent right here in our own country in buying ammunition and food and supplies for America and for America's Allies.

Millions of yards of cloth will be needed to clothe the American army; more than a million pairs of shoes will have to be put on its feet, whole droves of cattle will have to be dressed and millions of pounds of vegetables prepared to feed the army.

Every industry even remotely connected with the needs of the country will be speeded up to new production achievements. Leather, rubber, foodstuffs, steel and iron, copper, lead and zinc, coal and a hundred other industries will be directly affected.

More work for the factories means more money for the workers. And this in turn means more money in active circulation. More money will be spent. The butcher, the baker and the grocer will take in more. And having taken it in, they will spend it.

It is here that the situation should interest the motor car dealer, the garageman, the repairman and the supply dealer.

With all this additional money in circulation, the need for more intensive merchandising becomes apparent. Thousands of new prospects will be created.

The dealer who has viewed war activities with apprehension—with the thought, perhaps, of dropping a salesman or a mechanic in order to effect an economy—would do well to think about these new prospects.

No Time for Retrenchment

This is no time for retrenchment, for a curtailing of effort, for a sitting-back-till-I-see-what-will-happen attitude. It is time for expansion and for the hardest work that has ever been done.

The dealer or garageman who practises false economy by dropping a good man from the payroll, or by letting up in his drive for new business by discontinuing his local advertising, is his own worst enemy. He is promoting business hysteria. He is stabbing at his own credit. He is harming his own financial status. As well as creating a situation that is certain to react against him, he is evidencing a lack of backbone and creating a resistance that will be mighty hard to overcome.

Don't drop the salesman or the mechanic; don't cut down on local advertising; don't sit back and wait.

Make the salesman work harder than ever. Now is the time to show real ability as a business man. Map sales territories and work them intensively. Sell more goods, not less, with the picture of that \$7,000,000,000 of money going into circulation. Perhaps more salesmen may be necessary, not fewer.

There is not going to be any shortage of money in this country. But there may be a shortage of real business men with foresight and nerve enough to keep the new money in circulation. There is work to be done to keep a droop out of the business curve, and it is a man's work.

What Do YOU Say?

Beedee Cites Need of National Body

Editor Motor World: The Tri-City Automobile Trade Association, the Scott County Automobile Trade Association and the Rock Island County Trade Association have all been extremely active opposing the passage of the proposed 5 per cent automobile tax.

Each association took action and sent telegrams to the senators from their state and the congressman from their district.

Each association then got out circular letters, urging the necessity of each individual dealer making it his business to also wire his representative at Washington.

We enclose copy of a letter received from one of the associations and a copy of our telegram to W. S. Kenyon, A. B. Cummins and Harry Hull at Washington. Between 80 and 100 such wires have been sent out from this territory.

In this connection it occurs to the writer to suggest the use of your good offices through the Motor World to immediately bring forth every organization for local, state and national automobile trade associations. If there ever was a time when association or organization movement should be carried forward to a successful conclusion and every organization put concentrated effort for the mutual good of the industry, it is now.

If the trade were thoroughly and properly organized by communities, either city or county, then affiliated with the state and the state with the national organization, and we, as retailers, well financed and properly headed with representatives at Washington, we could be of tremendous power at this time for the good of all concerned.

Now Is the Time

Right now is the time when the manufacturers and jobbers themselves are soliciting the help and assistance of the dealers. They should have and will get it, but these same manufacturers have in the past overlooked, and some even opposed, dealers' organizations because there were certain factory abuses they knew would be opposed. In organization there is strength and that strength might not work to the best advantage of the manufacturers in yearly dividends, if some of those abuses were stopped. However, if stopped, it would materially benefit the dealer.

Now is the time that a dealers' organization should be formed while the manufacturers need their assistance and there is legislation at issue that is of vital importance to both manufacturer and retail dealer.

We believe it is just a matter of necessary publicity and to get all the dealers interested to carry it through to a suc-

Letters From MOTOR WORLD Readers

cessful conclusion. With 52,000 in the automobile trade in the United States, each contributing a dollar a year to a national organization, this money to be spent for betterment of trade conditions, the hiring of a competent director and conducted much along the same lines as the National Automobile Chamber of Commerce, or the National Association of Automobile Accessory Jobbers, much good would be accomplished for the entire country.

There would be fewer failures in the retail trade by reason of dealers being educated as to cost systems, etc. There would be a less tendency toward cut rate houses, and thus less failures. We all know the effect that every failure has on a community.

In conclusion our suggestion is that through the same columns and the same sources that you have been of assistance to the manufacturer and dealer in the past, publicity be given of the now pending automobile tax in the next few issues of your publication and do what you can to effect immediately trade organizations in every part of the United States, and especially a national association with a convention to be held at some suitable place and representatives from every part of the country on hand to formulate the final plans and put such an organization on a firm foundation. You can obtain plans for such an organization from Alfred J. Reeves or W. M. Webster of the National Association of Automobile Accessory Jobbers.

What would you think of the advisability of ascertaining every community, city or county, that has a trade organization; also various state organizations and give a printed list of the name of the association, its post office address, its president and secretary, such a compilation to be given publicity through your journals. We believe there are more organizations than we think for, but we have never gotten together and concentrated our energy as a whole. Classify the local in one section and the state in another.

We believe this would stimulate interest and that immediate correspondence would be interchanged between the various associations and thus foster and help carry through at the earliest possible date the formation of the much needed national to co-operate with the jobbers and manufacturers to make for better trade conditions, and with united efforts block unjust legislation, whether state or national.—R. E. Beedee, Interstate Auto & Supply Co., Davenport, Iowa.

Saves Him Money

Editor Motor World: We have already found the Used Car Price Record very useful to us, particularly so in placing the value on used cars in our territory. We have in most cases allowed more for used cars than is being reported by any of the cities shown in your records. Of course we have been able to sell them at a little better price, but it is harder to do so, and if there is any doubt in the customer's mind with whom we are dealing, we simply point to the record and show him what cars are selling for in the different cities, thinking, of course, that the dealer in selling them is making a profit on them.

Under these circumstances, we are able to bring up the true value of his automobile, and he goes away either dealing with us or feeling better for our having explained to him how we arrived at our figure.

This record is of great value to every automobile dealer in this United States. I have taken it up with a number of my dealers and recommended that they subscribe for the Motor World. They advised me that they would do so.

I stated we have in most cases allowed more for used cars than are being reported by any of the cities shown in your records. I mean by this, we are allowing more money for the cars we take in on trade than reported in the cities shown in the record. Of course, that is where we get in bad. Your report has given us considerable information as to the actual value of cars that are being sold in cities surrounding us. Of course, I appreciate that we can get a little more money for a used car in this market than they would in the larger cities, but the allowance we have been making has been considerably more and therefore we are going more carefully.

I was very much impressed with Waterhouse Sands' method in this week's Motor World and I shall adopt the same policy with reference to the used cars. I believe this is an entire solution to the problem.—The Lostro Auto Sales Company, J. R. Lostro, Athens, Ohio.

Values Used Car Stories

Editor Motor World: We want to congratulate you upon having such splendid articles in your publication regarding the used car problem. Each one of your issues is worth its weight in gold.

We would thank you very much if you would send us a copy of each issue prior to and including May 2 in which you have written up the used car problem.

The request for the extra copies is just to make sure of having a complete file.—J. J. Jacobs Motor Co., J. J. Jacobs, Sacramento.

Wilson Increases Capital

DETROIT, May 18—The J. C. Wilson Co. has increased its capital stock to \$1,000,000.

The RETAIL NEWS

EAST

Levene Motor Co., Twenty-second and Diamond Streets, Philadelphia, has been incorporated by George Levene, Howard H. Yocum and William H. Whitaker to deal in accessories and automobiles.

Berredin Rubber Co., 113 North Broad Street, Philadelphia, will handle its line of tires and accessories on a wholesale basis instead of retail, as in the past.

George J. Crumble, Philadelphia, is erecting a one-story garage at Broad Street and Allegheny Avenue, at a cost of \$12,000.

Williams Hardware Co., Clarksburg, W. Va., has been appointed distributor for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Company.

Fred J. Caesar of Irvington, N. J., and **Harvey N. Banks** of East Orange, N. J., have formed the **Lyon Garage & Machine Co.**, and will erect a garage at Lyon and Springfield Avenues, Arlington, N. J. Caesar will be president and general manager, and Harvey N. Banks secretary-treasurer.

Juniata Automobile Co., Mifflintown, Pa., is remodeling the store at 25 East Market Street, Lewistown, Pa., into one of the finest automobile salesrooms in central Pennsylvania. It will carry a \$2,000 stock of Buick repair parts and a \$6,000 accessory stock.

Crescent Garage, 6317 Fourth Avenue, Brooklyn, N. Y., has been appointed as service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

Ignition Specialties Co., 798 Seventh Avenue, New York City, has been appointed as service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

Louis Hoyt, Haverstraw, N. Y., has been appointed as service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

Farley's Garage, High Point, N. C., has been appointed as service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

The Fuller Storage Battery Co., 331 Church Street, Hartford, Conn., has removed to the new sales and service building recently completed, at 100 Ann Street. There is a commodious front court yard where cars are driven in to have the batteries changed.

The R. E. Loughney Motor Car Co., Pittsburgh, has purchased the building now occupied by them on Baum Boulevard, and in addition the adjoining building. They are remodeling both structures which, when completed, will give the Reo and Stutz cars a larger and attractive home.

Eddie Bald Motor Car Co., of Pittsburgh, has taken possession of the new Hudson salesroom and service station on Baum Boulevard, near Negley Avenue.

A. A. Ashton, in the tire and accessory business at Bigelow Boulevard and Thirty-third Street, Pittsburgh, has taken **J. M. Nalitz**, who for the past three years has been associated with him, into the business. The new firm name will be the **Ashton-Nalitz Co.**, which will continue the business at the same location, but the company intends to branch out and cover more territory and add new lines to its business.

Iron City Motors Co., Pittsburgh, Hupmobile distributor, has moved into its new salesroom and service station at 5914 Penn Avenue.

Davidson-Hollahan Co., Inc., western Pennsylvania distributors for Saxon motor cars, has rented a service station at 231 Spahr Street, Pittsburgh.

Lincoln Motor Sales Co. of Pittsburgh has arranged to sell the Truckmobile, an attachment for Ford cars, in the Pittsburgh territory.

Pittsburgh Paige Co. is now located in a new building on Baum Boulevard near Craig Street. The salesroom and service departments are now under one roof.

Pittsburgh Drexel Motors Co. has been formed in Pittsburgh to market Drexel cars for the entire western Pennsylvania territory. **James A. Bailey** and **A. R. Snedden** compose the firm.

Lange Motor Truck Co. of Pittsburgh has removed its service station to the new factory building at Fifth and Hamilton Avenues, Pittsburgh.

Stein-Williams Motor Co. of Pittsburgh has purchased the Colonial Garage, on Walnut Street near Aiken Avenue. The company is remodeling this building which, when completed, will be used as a service station for Mitchell cars and Stanley Steamers.

The Stratfield Motors Corp., Bridgeport, Conn., has been organized. The officers are **Louis J. Reilly**, president; **James A. McElroy**, vice-president; **Leo C. McElroy**, treasurer. The McElroy brothers have been in the automobile business in this city for some time, and Reilly was prominent in the local field of journalism. The new company will handle both pleasure and commercial vehicles.

SOUTHWEST

Bond Motor Co., Charleston, Mo., is building a new salesroom.

R. S. Robinson, Nowata, Okla., is the new owner of the Nowata Garage.

W. & H. D. Overton, Frederick, Okla., have bought the garage owned by **John B. Stevens**.

B. O. Simms, Weleetka, Okla., is erecting a stone building with a cement floor to be used as a garage.

The Concho Motor Co., San Angelo, Tex., is in new headquarters.

The Ford Garage & Supply Co., Big Springs, Tex., is erecting a garage.

Arthur F. Collins, San Angelo, Tex., is building a one-story brick garage.

H. E. Wilkerson, Shelbyville, Tex., has opened a garage.

The Lexington Motor Car Co., Dallas, Tex., is erecting a \$20,000 salesroom.

J. T. Chambers, Sanger, Tex., is erecting a garage.

Le Gear & Son, Sanger, Tex., are erecting a brick garage.

Bittel-Leftwich Tire Service Co., St. Louis, has opened an additional station at Kings Highway and Delmar Avenue.

Harry L. Matthews, St. Louis, one of the pioneer service station men, has been named chief of service for the **Tate Gilham Motor Car Co.**

A. S. Johnson and **A. L. Walsh**, St. Louis, recently with the **Stearns Motor Car Co.**, have joined the **Newell Motor Car Co.**

R. C. Solomon, St. Louis, recently named distributor for the Pathfinder car, has moved into his new premises at 3128 Locust Street.

Sinclair Painting Co., St. Louis, general painter, has opened a branch on Motor Row for the painting of monograms on machines. **F. J. Rebholz**, who learned his trade in carriage days, is in charge.

Deluxe Automobile Co., St. Louis, has opened a 24-hour free service for its used car department.

Overland Automobile Co., St. Louis, is installed in the new building specially erected at Twenty-second and Locust, which was used for the Automobile Show.

Wagner Electric Manufacturing Co., Atlanta, Ga., branch has been opened at 116 Auburn Avenue. **R. E. Anger** of Detroit is in charge.

Flynn-Stroh Tire Co., St. Louis, has opened a salesroom at 3318 Lindell. The Portage tire will be the leader. **John E. Stroh** and **W. T. Flynn**, both of long experience in the tire business in St. Louis, are partners.

Marathon Tire Co. of St. Louis will hereafter be operated as a branch of the Marathon factory. **C. J. Connors**, formerly special representative in southern Illinois, will be manager. A salesroom and service station is being equipped at 3435 Olive Street.

Newell Motor Car Co., St. Louis, announces the following new Dort dealers in their territory: **McClelland & Dornblaser** of Charleston, Ill.; **Manuel Bros.**, Leonard, Mo.; **Elvers & Taylor**, Mokane, Mo.; **J. W. Moser**, Caseyville, Ill.; **Ina Motor Sales Company**, Ina, Ill.; **Hugh E. Menk**, Staunton, Ill.; **R. W. Leisler**, Greenville, Ill.; **Nogelsanger Hardware Co.**, Cape Girardeau, Mo., and **Karnes & Tipton**, Senath, Mo.

Jefferson Highway Garage, Wagoner, Okla., is enlarging its quarters.

C. E. Trumbo, Wagoner, Okla., has opened a garage.

Borderland Garage, El Paso, Tex., which burned, is being rebuilt.

Firestone Tire & Rubber Co., El Paso, Tex., is erecting a building costing \$70,000.

McDade Auto Co., Houston, Tex., expects to occupy its new \$50,000 building about June 1.

Stokes-Hughes Co., Big Springs, Tex., is erecting a \$12,000 building.

Dan Earnest Garage, Matador, Tex., burned. The loss of \$6,000 was partly covered by insurance.

F. L. Knight, Seymour, Tex., is enlarging his quarters.

V. V. Hennon, Denton, Tex., has purchased an interest in the **Frits Garage**.

Marshall Black, Beeville, Tex., has opened a repair shop.

D. L. Dean, Haskell, Tex., has opened a garage.

Quick Service Garage, Haskell, Tex., is the name of a recently opened garage.

International Auto Co., El Paso, Tex., is building a garage.

West End Garage, Farmersville, Tex., will soon occupy new quarters.

H. A. Dougherty Motor Co., Kansas City, Mo., has taken a five-year lease on a building at 4124 East 12th Street, to be used as a body and paint department.

American Garage, Kansas City, Mo., will open Garage No. 2 at 7 and 9 West 14th Street.

D. S. B. Motor Co., Kansas City, Mo., will soon open a new garage. It has become the distributing agent in this territory for the **Peerless**, **Chalmers** and **Harroun**.

James Motor Car Co., St. James, Mo., has leased a new building for use as a service station and salesroom.

Nate C. Foster, Pratt, Kan., has bought the Shackelford Garage.

Whitmire Garage, Larned, Kan., is being completed.

Burlington Garage, Burlington, Kan., has been sold to James H. Campbell.

Jack Ackerman, Independence, Kan., has purchased the Central Garage.

Earnest Watts, Harlan, Kan., has bought the Thompson Garage.

Robinson Bros., Florence, Kan., are remodeling the Kornhaus blacksmith shop, to be used as a garage.

D. F. Dunmire and Ed Madden, Salina, Kan., have opened a garage.

Wilson Bros., Paxico, Kan., are building an addition to their garage.

E. E. Palmer, Garland, Kan., has begun work on his new garage.

O. D. Gauthier, Hill City, Kan., is building a garage.

Frager & Freel, Corning, Kan., will soon have their new garage ready.

Brandon & Dillenbeck, El Dorado, Kan., have bought the Maxwell Garage.

D. Edmonston and Ernest Hull have bought the C. G. Wittenborn Garage.

C. E. Ater, Fall River, Kan., is erecting a garage.

Elmer Collins, Afton, Kan., will open a garage.

Ed Rudolph, Phoenix, Ariz., local Ford agent, has announced that he will sell gasoline to Ford owners for 25 cents a gallon. The regular price of gasoline in Phoenix is now 26 cents. Rudolph will sell at the reduced price to Ford owners only, he says.

Terminal Garage has been opened on Houston Street, Dallas, Tex., in the Oppenheim Building.

Dan Earnest Garage, Matador, Tex., was destroyed by fire this week. The loss was \$10,000.

Harman Garage, Valley Falls, Kan., has moved into the building formerly occupied by the Dean creamery.

Botner Garage, Turon, Kan., is being enlarged by a 20 x 30 ft. addition at the rear.

Frank Dixon, Kinsley, Kan., has bought the building and business of Lancaster & Bittner.

Lewis H. Bath Garage, Webb City, Ia., was destroyed by fire.

Ezra Stoutzenberger & Son, Raymore, Mo., have opened a garage and will handle the Ford.

C. A. Bradbury, Mound Valley, Kan., will build a steel-covered garage and Ford service station on the site of his old livery barn.

Montgomery Bros., Slater, Mo., have sold the Rock Farm Garage to C. O. Richardson.

O. K. Garage, Cameron, Mo., has been sold to E. G. Thompson, Amity, Mo.

Lin Howell, Kahoka, Mo., has joined Joseph Hall in a new garage firm.

Edward Livesy, Concordia, Kan., has leased the Maddox Building for a temporary garage site. He expects to build shortly.

Nagelvoort-Stearns Cadillac Co., Hutchinson, Kan., has leased the remainder of the Salt City Business College block.

M. A. King Garage, Marshfield, Mo., is being enlarged by a 20 x 40 addition, which will house a repairshop.

Parson's Garage, Fredonia, Kan., is nearing completion.

Edward Shiley, McCracken, Kan., will build a garage on lots between the John Norlin store and the Hardgrove Market.

Moon Motor Co., Hutchinson, Kan., is now in its new location at 14 and 16 South Walnut Street.

Layne Bros., Higginsville, Mo., have let the contract for a garage building, 50 x 140.

B. F. Brokhausen, California, Mo., has built a garage, 105 x 105.

Maxwell Garage, Lincoln, Kan., is occupied by S. H. Long.

Charles Pierce, Latham, Kan., is building a garage at the corner of Broadway and Cherry Streets.

John Gulder, Fairview, Kan., will build a garage on the site of his present building.

Kingman Garage, Kingman, Kan., is nearing completion, and will be occupied by the first of next month.

George E. LeKron, Wichita, Kan., is manager of the International Garage, which has been opened in the new brick building at 144-146 North Water Street.

E. G. Lowe, Dallas, Tex., agents for Kelley Springfield motor truck parts and Monogram oils, has moved into his new building, 2417-19 Main Street.

Fisk Co. of Texas, headquarters at Dallas, is having its entire building overhauled, and will increase the stock supplies to meet the growing demand in Dallas.

Firestone Tire & Rubber Co., Dallas, Tex., last week received the largest shipment of truck tires ever sent to the Southwest. It consisted of several carloads.

The Pennsylvania Rubber Co., Dallas, Tex., has leased a four-story building now being erected at Young and Browder Street. The lease is for \$18,000.

The Goodyear Tire & Rubber Company, Dallas, Tex., has moved to its new quarters at Pearl and Harwood Streets. The lease is for five years, and cost \$18,000.

The Lexington Motor Car Company, Dallas, Tex., this week closed a contract for a new building at Commerce and Harwood Streets, for \$25,000. The structure replaces one of the landmarks of the city, and is at the end of Automobile Row.

H. L. Adler, Dallas, Tex., is erecting a \$30,000 building at Live Oak and Masten Streets. The lower floor will be the new home for the Electric Vehicle & Battery Co.

Dallas Investment & Development Co., Dallas, Tex., has awarded a contract for a \$10,000 brick garage at 1912 Live Oak Street.

McFall Rubber Co., Kansas City, Mo., suffered fire damage of \$40,000.

H. C. Jones, Larned, Kan., has opened the Storage Battery Supply Co., in the building formerly occupied by the Solid Rock Creamery Co., on West Fifth Street.

Hanson & Johnson, Morganville, Kan., have opened a garage and will handle the Briscoe. Coldwater Garage, Coldwater, Kan., has been sold by John W. Melcher to Charles and Philip Lenertz.

B. H. Tipton Garage, Salina, Kan., is nearing completion on South Fourth Street.

Ness Garage, Ness City, Kan., is being built on the A. J. Erhart property in the southern part of the city.

John Huse, Manhattan, Kan., has sold his garage to Ben Allen, Garrison Crossing, Kan.

Alcott-Norman Co., Carrollton, Mo., will use a floor of the Scott & Co. garage for its salesrooms.

C. O. Alderman, Santa Fe, Kan., has leased the Wilcox Garage at Copeland.

A. C. Florell, Esbon, Kan., has bought the interest of Chester A. Chandler in the garage business.

Rapids Motor Co., Blue Rapids, Kan., is having plans made for a large addition to its garage.

E. H. Forrest, Cole Camp, Mo., will open a garage.

H. E. McNeiley, De Soto, Kan., will open a vulcanizing plant and repair shop.

William A. Farrell, Manhattan, Kan., has purchased the Huse Garage.

Church Motor Co., Woodward, Okla., will open a garage.

Harry Jefferies, Gallatin, Mo., has purchased the McCaskey Garage.

C. L. Ream, Independence, Mo., is building a garage.

C. W. McClintock, Eminence, Mo., has opened a garage.

NORTHWEST

Beekman Garage, Iowa City, Ia., was damaged by fire.

Baruth Brothers' Garage, Alexandria, Neb., has opened for business.

Arthur C. Nelson, Magnet, Neb., has bought the Magnet Garage from H. L. Blomgren.

Carl Wluff, Atlantic, Ia., has sold the City Garage to C. M. Vetter.

S. K. Steverson, Huxley, Ia., has opened a garage at Midvale.

J. E. Odell, Kimballton, Ia., has bought the Elkhorn Garage, Elkhorn, Ia., from Clemenson Brothers.

O. W. Coder, Shambaugh, Ia., has bought the J. A. Brown Building and will convert it into a garage. His son, Frank Coder, will be manager.

R. E. Roantree, Parker, S. D., has opened a garage.

S. M. Clark, Sioux Falls, S. D., has organized a company with D. E. Morefield, Omaha, Neb., and will enter the garage business.

Campbell & Sly, Watertown, S. D., have taken over the garage formerly operated by H. A. Babcock.

Master Sales Co., Omaha, Neb., has moved from its old location at Twenty-fifth and Farnam Streets, to larger quarters at 414-418 South Twelfth Street.

Powell Supply Co., Omaha, Neb., has opened a service station in the two-story brick building at the rear of its Farnam Street store.

Charles Juracek, West Point, Neb., has sold his garage to William and Charles Nielke.

Tanner & Daley Garage, Greybull, Wyo., has been opened for business.

C. M. Carlon, Curtis, Neb., has bought the Western Tire & Auto Co. Garage.

H. C. Turney, Decatur, Neb., has sold his interest in Jerry's Garage to Edward Kline.

F. M. Bonham, Franklin, Neb., has bought an interest in the Maxwell Garage, and becomes the partner of his brother, B. R. Bonham.

Al Newell, Creston, Ia., has sold his interest in the Creston Auto Co. to James Brown and E. C. Dawson.

H. W. Eneny Auto Co., Eldora, Ia., has sold its garage to George Elderding and W. E. Rickerd.

George R. Grape and Ray Garst, Hamburg, Ia., have bought the W. W. Barnes livery and garage business.

I. K. Bec, Soldier, Ia., has sold the Soldier Garage to Brady Lund.

Bruce Mills, Woodbine, Ia., is the new owner of the Kibler Motor Co. Garage.

Oliver Miller, Genoa, Neb., has sold his interest in the St. Edwards Garage, St. Edwards, Neb.

Snyder & Sancher Auto Co., North Bend, Neb., has been dissolved, William Snyder purchasing his partner's interest.

L. A. Stafford, Clear Lake, Ia., has sold his garage to Gardener & Anderson.

F. W. Anderson, Coon Rapids, Ia., has sold his garage to Harrison & Smith.

W. F. Schoch, Shakopee, Minn., opened a garage and repair shop.

Elvin Blumquist and Oakley Olund, Stockholm, Minn., opened a garage and repair shop.

E. R. Boutell, Inc., is a new \$50,000 firm to sell King cars in Minnesota, the Dakotas, Iowa, eastern Montana and western Wisconsin. Temporary offices are at 344 North Exchange Street. The Minneapolis office is at 1203 Hennepin Avenue. Plans are being considered for building a large warehouse in the Minnesota Transfer railroad district. E. R. Boutell is president, Fred Powers is vice-president, Phelps Ingersoll is treasurer and Monte Appel is secretary.

George D. Wells & Sons, Morton, Minn., have sold the Franklin Garage to George Lee of Grand Forks, N. D.

H. M. Hessenius, Wilmont, Minn., has bought the Wilmont Auto Co. garage.

McNulty & Dafee Co. is the new name of the branch of the McNulty & Glenn Co. of Minneapolis selling Form-A-Trucks. As junior partner, Harry I. Dafee, for years with the McClellan Paper Co., Minneapolis, has been taken in. J. C. McNulty will have Sales Manager Burt Hubbard as his support in the sales end. The company has moved to larger quarters at 309 East Superior Street, opposite to its former situation.

Allen Motor Co. has moved from 108 East Superior Street to 747 East Superior Street, Minneapolis. E. O. Olund and R. M. Sederberg are the firm.

Oldfield Motors Corp., of Duluth, Minn., is remodeling the Atlas Building into a factory, where Oldfield motors will be made.

B. I. Johnson, Gascoyne, N. D., is building a garage.

Hieb Bros., Marion, S. D., will build a one-story garage, 42 x 70.

Lars Halvorsen, Willmar, Minn., will build a garage, 75 x 140, on Fourth Street.

Reliance Auto Co., Reliance, S. D., is building a garage addition.

Theodore Lebselter and P. N. Meng, Reliance, S. D., are building a garage, 48 x 50.

H. A. Bjorkland and O. E. Kaupang, New Sweden, Minn., have opened the Norseland Garage.

H. Powell, Benson, Minn., bought the Benson Garage.

H. B. Senn, Frank Rettinger and **L. A. Koons**, Rugby, N. D., have formed the North Side Automobile Company, and bought the Wedeberg Garage.

A. S. Hitterdal, Hitterdal, Minn., will build a garage.

Charles Jesmore, Eveleth, Minn., will build a garage on Grant Avenue.

O. E. Topness, Wolford, N. D., is building a garage, 30 x 90.

O. E. Barton, Osakis, Minn., has opened a repair shop.

George D. Wells & Son, Bird Island, Minn., sold the Franklin Garage to George Lee of Grand Forks, N. D.

A. J. Pleisance, Worthfield, Minn., has opened a tire shop.

Herb Lakings, Hurley, S. D., has bought the Hurley Garage.

B. J. Glattly and Floyd Taylor, Hot Springs, S. D., will open a garage.

Rathman & Jones, Hartford, S. D., have opened a garage and service station.

Zike & Augst, LeSueur Center, Minn., will build a garage addition.

Forstner Bros., Madelle, Minn., will build a garage.

Olaf Larson, Pingee, N. D., is building a garage addition, 13 x 60.

C. E. Dauwalter, Carver, Minn., is remodeling his blacksmith shop, with a second-story addition, for automobile repairing.

H. A. Borstad, Detroit, Minn., has bought Baker Bros. garage.

E. B. Clemenger, Brainerd, Minn., will open a vulcanizing shop.

J. M. Anderson, Havana, N. D., bought Willard Bros. garage.

Henry Scheffers, Albany, Minn., bought the F. C. Clark garage.

MIDDLE WEST

Auto & Cycle Supply Co., 138 Grand River, Detroit, has started business.

Burch Motor Sales Co., West Grand Boulevard and Fourteenth Street, Detroit, has opened an accessory store.

Sultan Auto Parts & Radiator Co., 122 Cass Avenue, Detroit, has opened a store.

Hayden & Duncan, 2292 East Jefferson, Detroit, have opened a store to sell automobile accessories.

Automobile Custom Shop, Inc., 527 Franklin, Detroit, has started in business.

Fred Moulton, Hancock, Mich., is building a garage.

Earl Wright, Oconto, Wis., has been appointed Oconto County dealer in the Studebaker-A-Tractor attachment for Fords.

Ford Garage, Pardeeville, Wis., is being remodeled to provide larger display and service shop room.

S. E. Sanders, Almond, Wis., has purchased the Millus-Nelson garage and repair shop, and intends to erect a 30 x 54 addition. William Millus is retained as manager of the mechanical department. Mr. Sanders is a Ford dealer.

The State Garage & Trucking Co., Milwaukee, has been organized with a capital stock of \$5,000 by Henry A. Woller, G. W. Dick and Harold E. Hoyd.

Johnson & Wismer, Florence, Wis., is the name of a new firm organized as a partnership between A. W. Wismer, proprietor of the Wismer Garage, and W. C. Johnson, formerly of the Florence Garage Co.

Marshfield Hardware & Auto Co., Marshfield, Wis., is erecting one of the largest electric signs in the state on top of its garage and repairshop building. The sign is a full-sized reproduction of a Ford, which the company represents as local dealer.

SOUTH

Hippodrome Motor Co., Nashville, Tenn., has removed to 1212 Broadway, and W. A. Marks, former mechanic for the Ford factory agency, has been put in charge of the service station. This marks the closing of the Ford Motor Co. direct representation in Nashville.

City Garage has been opened at 26 Lott Street, Savannah, Ga. P. D. Logan is the proprietor.

G. A. & W. G. Turpin, Americus, Ga., have opened a vulcanizing plant.

MOUNTAIN

Al Filson, Sandpoint, Idaho, is constructing a garage, 50 x 142. It will have a salesroom, repair department and service station.

COAST

Western Auto Supply Co., San Diego, Cal., has moved into a new salesroom at Fifth and Ash Streets.

S. E. Kennedy and R. W. Schnack, Tacoma, Wash., have formed the Kennedy-Schnack Co., which succeeds the McKay-Murphy Co., and will do a retail business in automobile accessories and tires at 767-763 Broadway.

Twin City Automobile Co., Chehalis, Wash., has begun work on its new two-story brick addition to its garage, to cost \$15,000.

E. G. Tennant, North Yakima, Wash., is planning to construct a one-story 100 x 130 brick garage, to cost \$20,000.

Knutzen Bros., Burlington, Wash., are building a 30 x 70 addition to their garage on Oak Street.

Volz & Nagle, Colfax, Wash., will shortly move to their new garage.

Baker Garage, Baker, Ore., operated by William Southard and James H. Shinn, will construct a brick garage. The present garage will be used as a repair department.

Braly Auto Co., Portland, is installing a repairshop in rear of its shop, to be in charge of S. Johnson. It will be equipped with latest type machinery.

Frazier & McLean, Portland, Ore., have let a contract for a four-story garage, 100 x 100.

W. S. Fleming, 112 Fourth Street, Portland, has installed a complete line of automobile supplies and accessories.

Chilcot-Nash Motor Co., Seattle, will establish a factory branch in Spokane, Wash., similar to a branch to be opened in Seattle. The Spokane branch will be equipped with a \$20,000 stock of parts and accessories, and will handle territory in eastern Washington, northern Idaho and western Montana, with C. M. Hickey as manager.

S. S. Marr Garage, Prescott, Wash., was destroyed by fire, with loss of \$6,000.

Bell Auto Wrecking Company has taken possession of the premises at 1025 Golden Gate Avenue, San Francisco, and will specialize in used parts for orphan cars.

J. J. Gilmore has removed his auto repairshop from Austin Street to 1114 Golden Gate Avenue, San Francisco.

The Brown Truck Attachment, San Francisco, manufacturer of the Brown Ford truck attachment, has removed its factory and salesrooms to 1222 Mission Street. The Delap Motor Company has been appointed for the counties of San Francisco and Sacramento.

Iles-Merrill Motor Co., Tacoma, Wash., has been incorporated by C. P. Iles and J. G. Merrill to handle the Oakland line in Tacoma and Pierce Counties. Salesrooms and service station have been opened at 1211-13 A Street.

Hainaworth Motor Co., Tacoma, Wash., handling the Oldsmobile line in western Washington, has moved its Tacoma branch to the new Griggs Building, 738-40 South Broadway. "Count" A. B. De Castellane is manager.

C. B. Clement, Tacoma, Wash., has been engaged by the McDonald-Goodwin Company to take charge of the Garford truck line.

The Portland Motor Car Co., Oregon distributors for the Packard and Jeffery-Nash cars and trucks, are building a one-story brick building on land 100 feet square located at Tenth and Burnside Streets, Portland.

Wentworth & Irwin, Oregon distributors for the G. M. C. and Doane trucks, have taken a 10-year lease on a two-story brick building situated at Second and Taylor Streets.

Ballou & Wright, wholesale accessory dealers, with headquarters at Portland, Ore., and with a branch in Seattle, Wash., have leased a store just north of their present location at 80 Broadway. The newly acquired premises are to be employed for the display of the Smith Form-A-Truck line.

Lawrence Therklieson, Portland, Ore., has been appointed sales manager for the Braly Auto Co., Franklin and Scripps-Booth distributor, replacing H. W. Lyon, who has joined the Cook & Gill Co. as sales manager. Therklieson was formerly with the Boss-Peake-Auto Co.

W. S. Barnes, Portland, Ore., manager for the Paige Motor Sales Co., has joined the sales forces of the Oregon Motor Car Co., Portland, Studebaker distributor.

Economical Service in Overland Station

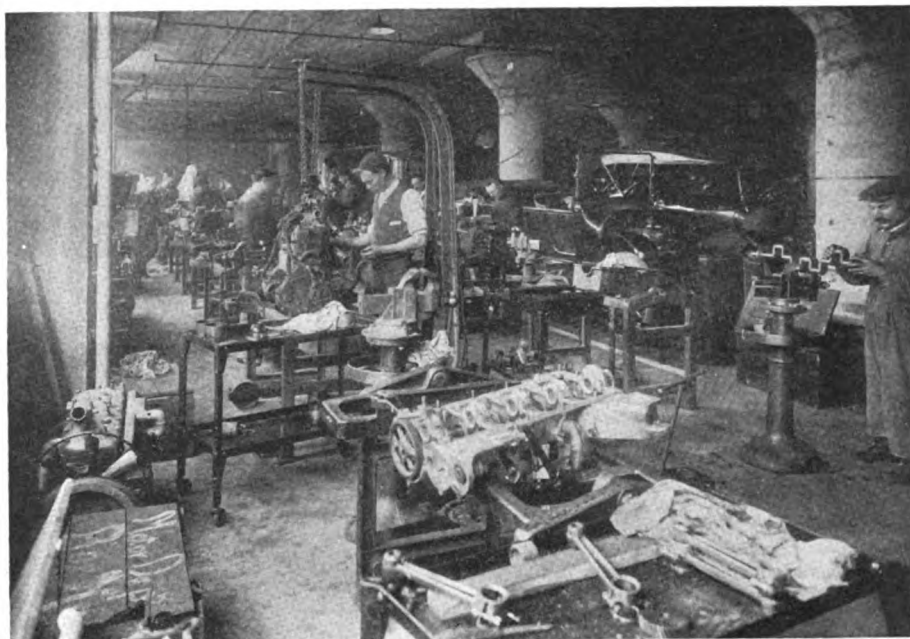
(Continued from page 16)

show them how the work should be done.

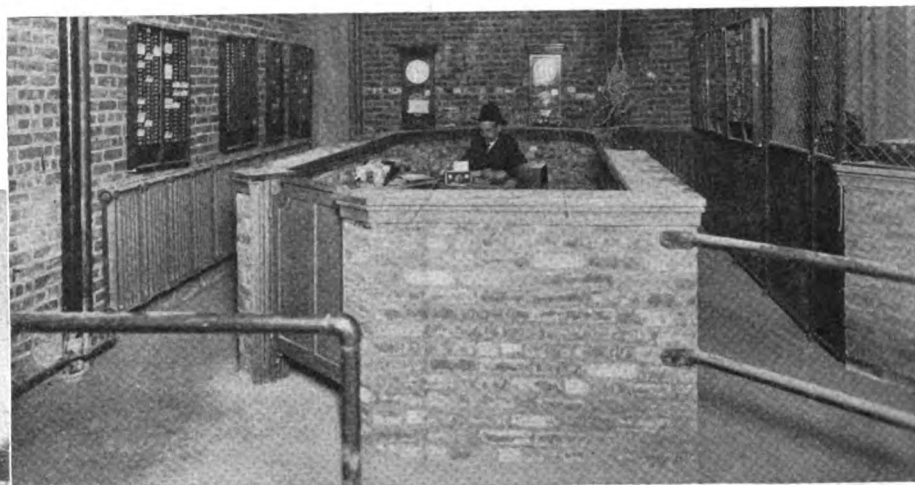
A week after the customer receives his repaired car, a post card is mailed to him asking him whether the repair work has been done satisfactorily. Thus the owner is not given the opportunity to work up a grouch in case something goes wrong.

The visits the owner makes to the service station, for any reason whatever, are carefully recorded. As soon as the car is purchased, the owner's name, address and details regarding the car are set down on a card which is filed away alphabetically. Whenever he brings his car in, even for such a small thing as a fan belt adjustment, this fact is written down, so that it is easy to tell at a glance just what service each man has required. The card shows whether the work was charged for or done gratis. Detailed information regarding any particular job can be obtained by looking up the job numbers.

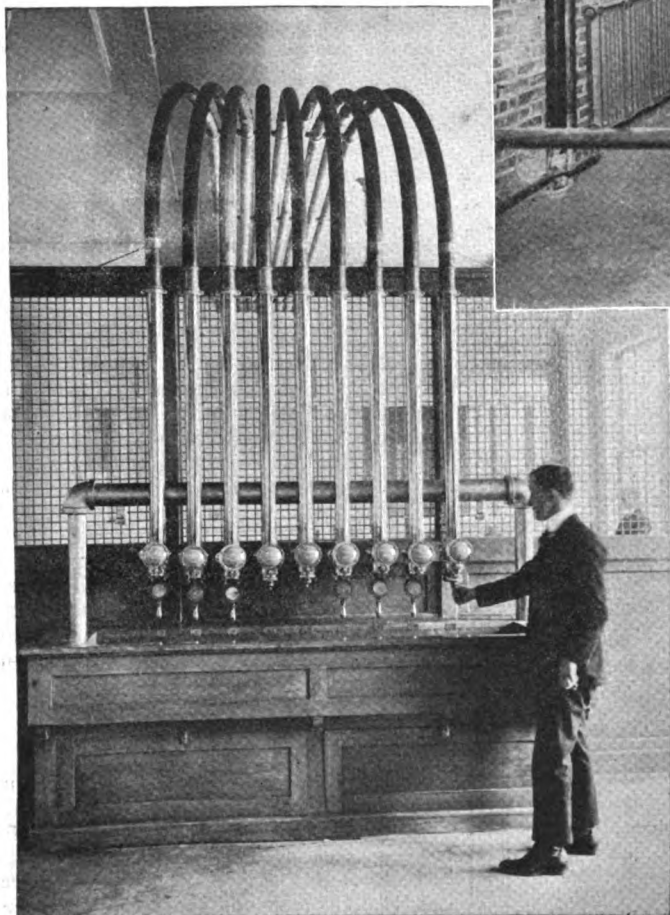
The comfort and convenience of the customer are looked after in numerous small ways. The service has been perfected to the smallest detail. There is a comfortable waiting room on the first floor, provided with magazines and writing materials.



Practically all work in the engine department is done on engine stands because the greater accessibility of the engine compensates for the time required to remove it



Timekeeper's office, at the rear of the first floor and adjacent to the employees' elevator. The men enter on one side, punch the cards and leave on the other side



Pneumatic tube terminal on the tenth floor. It is at this point that the carriers are transferred



Loose articles on the car are packed in a bag, which is padlocked and the key given the owner

An extensive supply store on the sixth floor is not only good business, but is also a big convenience to the customer because he can buy here everything he can possibly desire for his car.

Another detail is the use of a bag about the size of a mail bag, into which are placed all loose articles on the car. The bag is padlocked and the key is given to the customer so that there can never be any dispute about loss of belongings.

The building is concrete and steel and is as fireproof as modern methods could make it. It is situated on West Fifty-seventh Street, ½ mile from the heart of the automobile section and about 1 mile from the Overland showroom on Broadway. The building extends through to Fifty-eighth Street, and there are entrances on both streets. The first floor is slightly below the street level, and there is a separate entrance on Fifty-seventh Street to a ramp which connects to the next three floors. On Fifty-eighth Street there is a short, sharp ramp to the second floor and a longer, more sloping incline from the street level to the first floor.

Beside the ramps there are four methods of communication between the floors. There are three passenger car elevators, two passenger elevators, two stairways and two dumbwaiters, electrically operated. There is also provision for two more passenger elevators. The front stairs and front elevator are for customers and office employees and the rear elevator for workmen.

In a building of this size speed of communication is of great importance. There are so many floors and each floor is so large that considerable time might be wasted unless particular pains were taken to prevent this difficulty.

Speed in delivery of parts is taken care of by the four dumbwaiters.

Pneumatic Tube Saves Time

Almost instant service in the delivery of written orders is obtained by the use of a pneumatic tube system made by the Lamson-Niles Pneumatic System Co., Boston. There is a tube connection at every point in the building where an order or a requisition which may require delivery to some other department might be made out. Thus there are tube connections at the office of each floor foreman, a connection at the parts and accessories stockroom, one in the office on the ground floor, etc. All tubes lead to the top floor, where a man acts as switchman by placing the carriers in the correct tubes. Supposing, for example, one of the men on the second floor desired a spark plug. He would make out a requisition on the parts and accessories department on the sixth floor, place it in a carrier and send it to the tenth floor, where the man would transfer it to the tube running to the sixth floor. The clerk in the stockroom would immediately get the spark plug and place it on the dumbwaiter, which would carry it to the second floor.

An incalculable amount of time is saved by the use of the pneumatic tube

system. Not only does it mean a saving in errand boys' salaries, but it means a quickening of the work throughout the whole building, since the average time of delivery of an order by this system is 3 seconds. If boys were depended upon to do this work it would often take several minutes, and meanwhile the work on some car would be held up.

A single tube is used for both outgoing and incoming carriers. The carrier is driven by pressure, and to send it on its way it is simply necessary to place it in the tube and then close the end of the tube with a metal flap which is provided for that purpose. This flap remains closed until the carrier is delivered at the other end, when it automatically opens.

Telephone communication in minimum time is possible because of the use of an automatic telephone system which does not require the use of a switchboard.

Boat Type Roadster Is Developed by Hackett

Patented Door Allows Entrance to Both Front and Rear Seats—Price \$888 on Standard Chassis

JACKSON, MICH., May 19—The Hackett Motor Car Co. has brought out a new roadster, in which are incorporated a number of new body features. The roadster is particularly noticeable for its boatlike lines and the fact that the top side line of the body is a well defined curved line extending from the front to rear, and convex in relation to the ground.

One of the important features is a patented door which allows a direct entrance to both the front and rear seats, eliminating the necessity for passing between the divided front seats.

The roadster body is mounted on the same chassis as the Hackett touring car, having a Golden, Belknap & Swartz engine and clutch, Grant-Lees gearbox, Walker-Weiss axles, with semi-floating gear, Hotchkiss drive, Foster steering gear, Connecticut ignition, Carter carbureter and gravity tank, and Dyneto 2-unit starting and lighting system.

The roadster described sells for \$888 f.o.b. Jackson, Mich., with wire wheels \$90 additional. The wheelbase is 112 in.

Three Trucks in Merger

DETROIT, May 19—The Krebs Commercial Car Co., of Clyde, Ohio; the Lincoln Motor Truck Co., of Detroit, and the Clyde Cars Co., of Clyde, have been merged into one company to be known as The Clyde Cars Co. It will market five models of trucks, which will be known under the name of Clydesdale.

This merger, together with increase in capital, has been made necessary to care for an increased production and to meet with increased sales at home and abroad.

C. R. Dunbar, of Holyoke, Mass., well known as a New England distributor of cars and trucks, has been elected president of the new company; J. C. L. Krebs, Clyde, is vice-president and general manager; W. P. Dodge, formerly treasurer of the Barney & Berry Co., skate manufacturers of Springfield, Mass., has been made assistant treasurer and sales manager; J. B. Crockett, president of the New York automobile exporting house of J. B. Crockett Co., Inc., is treasurer, and Homer Metzger, of Clyde, is secretary.

The Krebs Commercial Car Co. has been engaged in the manufacture of trucks at Clyde for several years past, and the factory of this concern, which includes over 80,000 feet of floor space and a large machine equipment, will be used, all tools and materials of the Lincoln Motor Truck Co. having been removed to Clyde from Detroit. Plans are complete for further expansion, and ground will be broken within the next thirty days for new buildings, which will greatly increase the manufacturing facilities of the new company.

Gas Jumps in Denver

DENVER, May 19—Gasoline has taken another 1 cent jump in Denver after remaining steady 4 months. The wholesale price is now 23 cents to garages and filling stations, where it retails at 25 cents. Some garages charge a few cents more on the ground that they handle gasoline merely as an accommodation and cannot afford to sell it at the filling station margin. The tank wagon price direct to consumers in 25-gallon lots or more is 24 cents. No special reason is given by the oil companies beyond increased demand. There were two advances of a cent each in January, one on the 1st and the other the 18th.

Edgerton Trailer Opens Up

EDGERTON, WIS., May 19—The Edgerton Highway Trailer Co. has begun operations in this city and will manufacture trailers of a two- and four-wheel type. The new company, incorporated at \$180,000, took over the old Edgerton Wagon Co.'s plant. The officers are: president, J. W. Menhall, formerly of the Warner Trailer Co.; vice-president, B. C. Willson; treasurer, A. McIntosh; secretary, E. Z. Menhall; assistant-secretary, C. F. Florey. The directors are: Menhall, McIntosh, Willson, Florey and Frank Pringle.

Jenkins Increases Capital

ST. LOUIS, May 19—The Jenkins Vulcan Spring Co., maker of automobile springs, has issued its 1917 catalog for springs on practically all American makes of cars. This company carries in stock at its plant here and in its four branches, a total of 90,000 replacement springs, covering 588 separate and distinct types of cars. An increase in capital from \$60,000 to \$200,000 has been made to take care of the increase in business.

The Farm Tractor

(Continued from page 11.)

sequence; but in this day every tractor builder is but digging the foundation for the house of his reputation. The man who takes chances with the foundation is likely to find cracks in the building after it has stood a while.

Just to cite a single example of the sort of harm too great a care for cost can do. In the open market there can be bought very cheaply cooling fans and pulleys for them. There is no stock equipment of this sort, made for motor trucks, of course, that is big enough for tractor work. To use the stock articles dooms the farmer to perpetual belt trouble, means that the water will boil, the engine run hot and eventually damage itself thereby. The dollar or two extra for properly massive fans and fan drives will be earned back by the machine in the first few weeks.

The very light tractor, which can at the best only pull one plow bottom, will certainly sell in large quantities, but it will do so in much the same way as a Ford delivery sells. That is to say, the small farmer can make economical use of a minimum size tractor just as a small tradesman can economically employ a light passenger car chassis. In both cases first cost is highly important because the man cannot raise more than a certain amount of money. In both cases the desire is to get the best improvement upon the horse that the capital available will supply.

Three Sizes Suit Most Cases

But just as no large business would ever handle its transportation with a huge fleet of the cheapest possible vehicles, so no farmer would ever use a smaller tractor than he could afford to buy—up to a three or four-plow size that is. For one thing, the cost of labor is highly important. Two men can handle a very large tractor indeed, and do a vast deal more work with it, than could four men with each a one-man, one-plow machine.

Now the building of a tractor is both easy and difficult. Compared with the task of producing a good automobile 10 years ago it is child's play to build a tractor which will have the requisite power and be reasonably efficient; but there are very little data available to enable us to judge whether the machine which seems to be doing so well is really the sort of thing it ought to be.

For example, we do not yet know what the speed should be. With plows as now made it is generally thought that from 2 to 2½ miles an hour is the best speed, but plows have been built to suit horses for centuries, and it may easily be discovered that greatest economy results from plowing at three times the speed with a different sort of plow.

This will react upon the tractor, altering in some ways its specification, so it is fairly safe to predict that it will be 10 years before tractor engineering has reached a stage of development comparable with that of the automobile to-day.

Thus the engineer's difficulty is more to decide what sort of a machine he wants to make than actually to make it. When the broad outline is settled the "inking in" is not so hard. Here it is that automobile experience comes to our assistance. There are problems for the tractor engine designer, but he can be sure of laying out an engine which will be fairly satisfactory. With the transmission, it may turn out rather inefficient, but we know so much about designing gearsets that *mechanical* mistakes are improbable to the last degree.

Size and Power

Probably the first thing upon which some semblance of agreement will be reached is with respect to size and power. In trucks we have 1-ton, 1½-ton, 2-ton, 3-ton and 5-ton as the standard list of capacities. There are larger trucks, but the three smallest are the most used. In tractors we have no such convenient rating for laying down a list of types. Sometimes horsepower is mentioned; more often a machine is classified by the number of plows it will pull in "normal" circumstances, and thus we get two-plow tractors, three-plow tractors, and so on. Unfortunately this means very little either to engineer or farmer, because the nature of the earth and of the plow, together with the speed of operation, are factors just as important as the mere number of plows.

From an engineering viewpoint the drawbar and the speed will probably come to be the most used factors—the drawbar horsepower that is. But this is not likely to be accepted readily by the farmer as a means of rating for some time to come. His question is "What work will it do?" and we have got to find some way of telling him in terms which he can appreciate.

It might be possible for the tractor division of the Society of Automotive Engineers standards committee to set up some definitions which would translate drawbar horsepower into number of plows. If agreement could be reached as to the speed at which rating should be made, say 2 m.p.h., and also as to the drawbar required per plow, say 1000 lb., under normal conditions, we could then rate a tractor in terms of number of bottoms, once the drawbar at the standard speed was known.

Power is a direct index of a tractor's usefulness either for towing implements or for driving stationary machines. For a threshing machine, for example, the engine power required at the belt is a very definite thing, and a farmer who wants to use his tractor for driving a particular thresher already knows that the tractor engine must have at least so many belt horsepower.

The question of driving threshers and similar machines may have a profound effect in settling the range of sizes in which tractors will be built. Apparently a tractor with less than 25 to

30 brake-horsepower is considerably limited in this respect—brake-horsepower at the belt pulley that is.

On conventional reckoning a trifle less than 10 hp. in the engine is necessary adequately to handle one plow bottom, allowing for the losses in transmission, which are variously reckoned from 30 to 50 per cent. This means that a tractor big enough to drive a fair sized thresher is capable of pulling three or perhaps four plows in most sorts of earth. Machines with 20 brake-horsepower or a little less, commonly called two-plow outfits, can only drive a thresher of uneconomically small size.

Probably the small farmer will be content with a tractor which is big enough for most of his work, leaving out such jobs as threshing. On some farms it may easily pay better to have several small tractors with the handicap of having to get outside assistance for the heavy stationary jobs than to have one large machine; because the large tractor cannot be used to best advantage in the field unless the areas to be tilled are individually large.

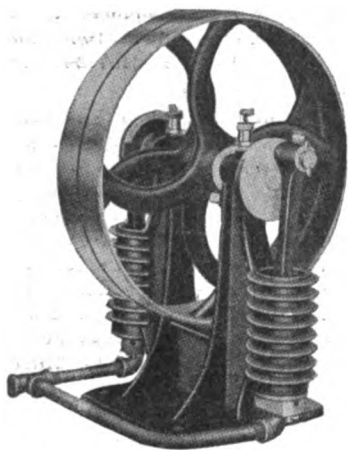
Where Time Is Money

Also it must not be forgotten that as long as he depends on horses the farmer is safe to have most of them in good condition at any time; if one falls sick it does not stop his work. Much farm work *must* be done at the opportune moment. A factory loses a week's earnings if it is forced to shut down for six days; a farmer may lose many months of earnings by being unable to work as he should for two or three particular days. Thus it is not very safe for a farmer to rely upon just one tractor. Suppose he wants capacity for pulling six plows at once. One big machine will do this and will also drive a substantial thresher. Two smaller tractors will do the same plowing but will not drive the thresher. Yet with two tractors a breakdown would only slow work and would not stop it.

In something the same way one sees in the truck field very often that it is better to use three 2-ton trucks than one 6-ton, although the latter might be more economical provided it could be relied upon to operate continuously without trouble; but a breakdown in transportation seldom is vitally important in the way a delay is vital to the farmer.

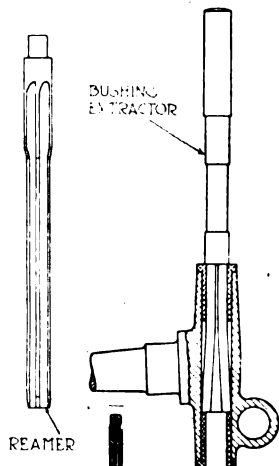
Just at present the prevailing opinion in the tractor factories appears to be that the bulk of the machines called for will be made in three sizes, 10 hp., 15 hp. and 20 hp. at the drawbar, at a speed of between 2 and 2½ m.p.h. These are otherwise called two, three and four-plow outfits. In this range it seems to be low first cost which is the main factor in the demand for the smallest size, and a good many men in the industry incline to the opinion that for all-round usefulness the 20 drawbar-horsepower machine is the best, better for most work than anything larger and yet big enough to operate economically on almost all the work a medium sized farm has to undertake.

Accessories



TROJAN AIR COMPRESSOR

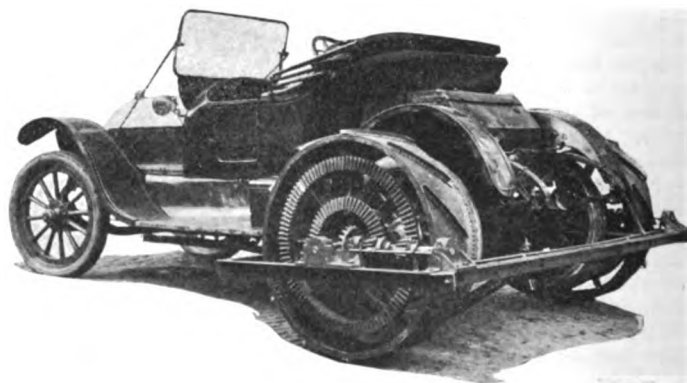
A two-cylinder, air-cooled, belt-driven compressor for garage work. Bore and stroke 1½ x 2. Price \$17.50.—Beckley-Ralston Co., Chicago.



REAMER

DYER REAMER FOR FORDS

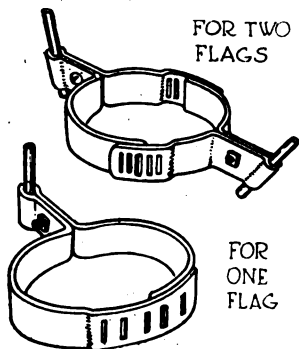
A duplex reamer for steering knuckles, spindle arms and spring bushings. Price \$1.50. The Jiffy bushing extractor removes steering knuckles, spindle arm and spring bushings. Price \$1.25. G. H. Dyer Co., 155 Brookline St., Cambridge.



CURTIS FORM-A-TRACTOR

A simple device for converting the automobile into a farm tractor. It is a two-wheeled cart with a tongue attached to the front axle. The automobile wheels are mounted in a cradle and the tractor wheels are

driven through the automobile wheel hubs. There is a double reduction gear on the tractor wheels. It may be installed in a few minutes. It is suitable for practically all makes of cars. Price \$350.—Curtis Form-A-Tractor Co., Strauss Bldg., Chicago.

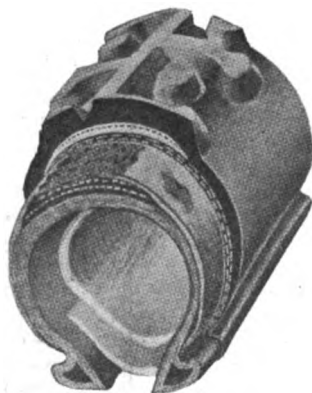


DOW FLAG HOLDER

An adjustable flag bracket for one or two flags as desired. Price, single flag holder, 35 cents; double flag holder, 45 cents.—Dow Wire & Iron Works, Louisville.

MIRROLIKE POLISH

Mirrolike is an especially prepared cleanser and body polish. It is to be used in place of soap and water and in addition to removing dirt also acts as a polish and a varnish rejuvenator and food. The liquid revives the finish and by feeding the varnish operates to prevent crazing and cracking. The product contains neither acid nor gum, does not collect dust and will not rub off. It can also be used to rejuvenate leather upholstery, the effect being to clean the leather and render it pliable. Mirrolike is put up in pint cans at 65 cents, quarts at \$1 and gallons at \$3.—Mirrolike Mfg. Co., 203 Eighth Street, Long Island City.



EVER-LAST TREADS

This tread is applied to old tires. It consists of a new tread and side walls reinforced with two layers of fabric and a third layer in the tread. It is made with non-skid and rib treads and is vulcanized on by a cold cure process. The tread is guaranteed for 3500 miles. It is made in all sizes. Price, 30 x 3, \$9.65; 32 x 4, \$18.45; 36 x 5, \$29.40; plain treads 5 per cent less.—Ever-Last Tread Co., 128 E. New York St., Indianapolis.

KEPURUBER PRESERVATIVE

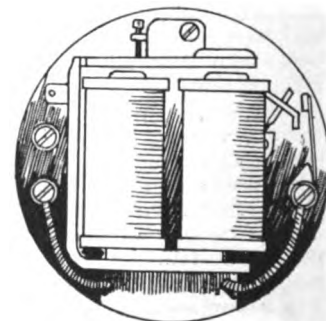
Rendering rubber impervious to checking and deterioration is the function of a new product known as Kepuruber. This is a liquid preservative to be applied to rubber articles of any kind at least once a year. It may be applied either with a cloth or brush. It is not designed to restore rubber that has become checked, but on all new rubber articles and those which have become hard through the exu-

dation of the zinc, sulphur and other substances that go into the manufacture of rubber can be restored if the rubber has not checked. With an annual bath of Kepuruber the slow chemical change common to all untreated rubber is avoided and thus the article maintains its life, flexibility and elasticity. Kepuruber is a patented article made by the Kepuruber Co., 436 Fairmont Ave., Blue Island, Ill., and is sold under a money-back guarantee in 25, 50 and 75 cent sizes, as well as larger ones at \$1, \$1.50 and \$5.

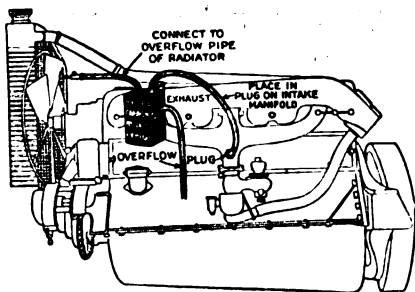


HARTFORD SELF-WINDING CLOCK

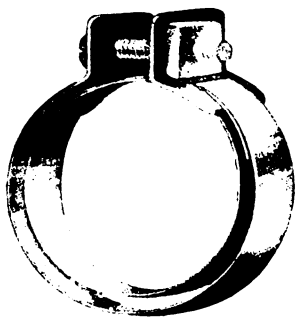
It is electrically wound once every minute by a small electro magnet which may be operated from any circuit from 4½ to 30 volts—in other words any car lighting circuit, or four dry cells may be used. The clock has a seven-jeweled compensated watch movement mounted



in a patented hard rubber composition base designed to absorb vibrations and to thoroughly insulate the movement from the electrical attachment. It is supplied with nickel, or all black with black or silver dial, and guaranteed for one year.—Price, \$15. Dotts Specialty Co., Circle Bldg., Broadway and Fifty-ninth Street, New York.

**CARBON PREVENTER**

A device for supplying water vapor to the intake. It consists of an aluminum box clamped to the exhaust pipe. A flexible pipe is connected to the overflow pipe of the radiator and another pipe runs from the box to the intake manifold. Price \$5. Hydro-Carbon Preventive Co., 3029 Third Ave., New York.

**COOPER ADJUSTABLE HOSE CLAMP**

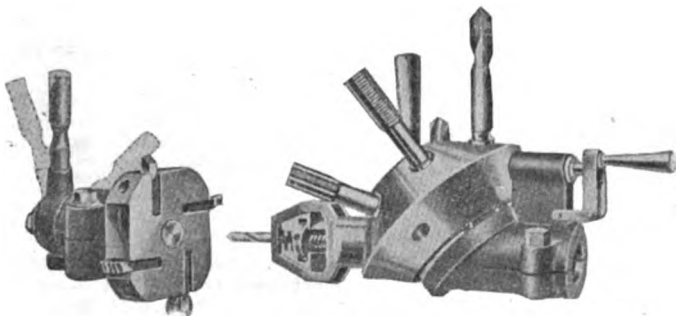
It will fit any size of hose from the largest to the smallest and is efficient on any size. The clamp consists of the two angle pieces through which the clamping screw passes. In each angle there is a slot. One end of the metal ribbon is slipped into one of these slots and bent over, passed around the hose through the other slot, then around the hose again, through the same slot, and bent over. Any excess is then cut off. The result is a simple clamp which gives a tight joint. It has the advantage, from the dealer's standpoint, that it is only necessary to carry one size in stock. Price \$3.50 per 100.—Otis-Flagg Corp., New York.—Robert Marcus, 25 West 42nd St., New York, distributor.

**NEVER-OUT FLAG HOLDER**

A simple radiator bracket designed to hold one or three flags as desired.—Rose Mfg. Co., Philadelphia.

**TOTALUX HEADLIGHT GLASS**

It consists of a series of diagonal prisms which deflect the light onto the road, thus eliminating glare in the eyes of pedestrians or motorists. At the same time the road is illuminated better than if the glass were not used.—Consolidated Sales Corp., Milwaukee.

**NEWMAN LATHE TURRET**

Any engine lathe may quickly be converted into a turret lathe. There is a tail stock turret particularly for boring and reaming operations. It can carry five

tools which may be brought into place by simply rotating the turret. Price \$30 to \$40. Another type of turret for mounting on the tool post carries four tools. Price \$50.—Newman Mfg. Co., Cincinnati.

REPAIRITE

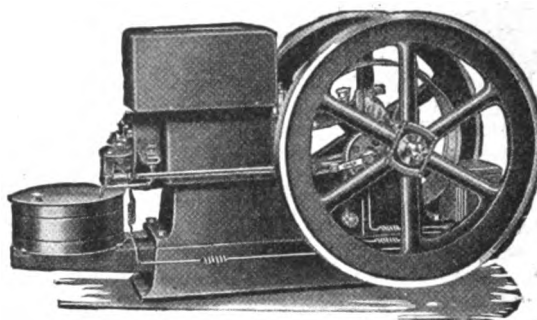
A reinforced, self-vulcanizing fabric patch for repairing either casings or tubes which is easily applied. It is made from strong khaki fabric and high grade semi-cured rubber.—Continental Rubber Works, Erie, Pa.

**SINGER TRAFFIC SIGNAL**

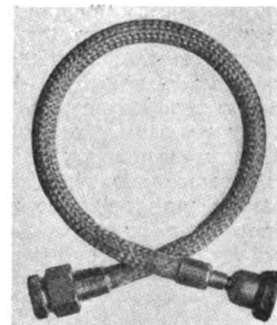
The signals, Ahead, Stop, Right, Left and Back, appear simultaneously at two signal boxes, front and rear. The word Stop is in red and at night the boxes are illuminated. The signal is controlled by five push buttons carried in a neat switch which may be mounted on the cowl board. The brake is attached to the Stop signal, so that whenever the pedal is used the word Stop is registered. Price \$25, installed.—Singer Auto Signal Co., 2827 Locust St., St. Louis.

**NEVER-SKID FOR DUAL TIRES**

There are eight cross pieces constructed of woven steel wire, held in place by a chain which lies in the crack between the two tires. It is drawn tight with a turn buckle.—Never-Skid Mfg. Co., New York.

**MECO ENGINES**

A stationary engine suitable for farming work made in 2, 3, 4, 6, 8 and 12 hp. sizes and costing respectively \$44.34, \$64.62, \$88.50, \$119.88, \$167.76, \$238.80, f.o.b. cars Kansas City. They are supplied with magneto or battery ignition. They are hopper cooled. These engines are designed to run on gasoline, kerosene or gas and are sold on 90 days' trial and 5-year guarantee.—Manufacturers Engine Co., 2076 Crystal Ave., Kansas City.

**PENFLEX METAL HOSE**

Metal gasoline hose is more durable and is not affected by the action of gasoline. It is perfectly tight and may be supplied in any length and fitted with connections for any style pump. Automobile tire filling air hose, 5/16 in. inside diameter, is made of galvanized steel covered with a fine wire lacing. It is flexible, but is guaranteed not to kink. It is not affected by oil or gasoline. It is fitted with standard pipe thread couplings and may be had in any length desired.—Pennsylvania Flexible Metallic Tubing Co., Philadelphia.

**RED CROSS FIRST AID BOX**

A touring necessity. It contains a complete first aid equipment. The outfit shown costs \$4.50, others from \$2.50 to \$7.—Bureau of Supplies, American Red Cross, Washington, D. C.

Electric Accessories Men Better Conditions

Newly Formed Association in First Session Gives Great Attention to Patent Situation

HOT SPRINGS, VA., May 21—The first annual meeting of the recently formed Automotive Electric Association was held at the Homestead Hotel, May 17, 18 and 19. The attendance approximated forty from the following companies:

Dayton Engineering Laboratories Co., Dayton.
Dyneto Electric Corp., Syracuse.
Electric Auto Lite Co., Toledo.
Leece-Neville Co., Cleveland.
North East Electric Co., Rochester.
Remy Electric Co., Anderson.
Robbins & Myers Co., Springfield.
Splittorf Electric Co., Newark.
U. S. Light & Heat Co., Niagara Falls.
Wagner Electric & Mfg. Co., St. Louis.
Westinghouse Elec. & Mfg. Co., Pittsburgh.

The objects of this association are to discuss subjects of interest and value to the industry in which its members are engaged, to advance and improve the industry by standardizing equipment and to standardize its application in co-operation with the Society of Automobile Engineers and the automobile manufacturers.

The chairman of the standardization committee made his report, appointing various sub-committees to handle various subjects of importance in the industry, one of which is as follows:

In view of the immediate prospect of the member companies being called upon to supply electrical equipment to the Government for use on trucks and aeroplanes, an especially strong sub-committee has been appointed to consider questions pertaining to this work and to make such recommendations as may be considered advisable from the standpoint of giving the Government the best and most prompt service possible.

Efforts were made at this meeting to arrange some manner in which the patent situation pertaining to the industry could be amicably adjusted to the best interests of its members and their customers. The Legal and Patent Committee submitted the following report:

"The subject of patents and patent litigation is important, both to the members of this Association and also to their customers.

"The electric starting, lighting and ignition system of today is a highly ingenious piece of apparatus. Large sums of money and much high grade inventive and engineering work have been used in developing it. This has been done in a short space of time.

"Six years ago saw the first real commercial adoption of the electrical starter. Since then the advance has been very rapid in electrical development.

"Much of this development and change has been made necessary by the rapidly increasing requirements and demands of the automobile companies, to keep pace with the rapid improvements in motive power.

"Pressure for improvement has made great activity in these electrical inventions; but, since some of the results aimed at are of common interest and knowledge, conflict of patents, and numerous infringement contentions, seem bound to occur. And they have occurred.

"Some litigation has already been completed, other suits are pending awaiting trial, others are threatened, others are in process of consideration.

"A preliminary investigation shows prospect of serious and extensive litigation involving many companies.

"This would involve great expense, and distract from normal business duties. It particularly leads to great confusion and annoyance among the automobile companies and their users in trying to decide the merits of conflicting plans."

The members attending the convention participated in varied forms of recreation, including golf, horse-back riding, and target practice. Prizes in golf were won by H. W. Griffith, Walter Robbins, J. C. McMahan, Mr. Brazelton. Prizes in shooting were won by J. G. Wood and A. F. Kwis.

The association holds four regular meetings each year, at ninety day intervals, the next meeting is scheduled for August.

Illinois Expects to Have Lien Law

SPRINGFIELD, ILL., May 22—The Garage Owners Association of Illinois expects to have a lien law. It opened a state convention this morning in this city, which is the state capital, and it is expected that the final vote on a proposed law will be held before the convention adjourns.

The convention was staged at this time in order that the members might be present when the vote is taken and see enacted into law the statute for which they have fought for several years.

The law as originally drawn several years ago did not provide for the prior claims of chattel mortgages, and for that reason the dealers in cars were not in sympathy with the measure. But the bill now makes this provision and the measure has the support of the whole state trade.

President Halbert of the Chicago Garage Owners Association has done much of the preliminary work on the convention and lien law and has been supported by assistants in 51 assembly districts.

Army Wants Makers to Bid on Passenger Cars

Reported to Have Bought 7000 Touring Models—Most of New Bid Is for This Type

CHICAGO, May 22—Special to Motor World—All manufacturers of passenger cars have been asked by the Quartermaster of the Central Department here to submit bids covering the purchase of roadsters and touring cars for the use of the Government. It is further reported that 1000 of one make car, 2000 of another, and 4000 of another already have been ordered; all are touring cars.

Bids will be accepted only from manufacturers and are to be opened at Washington on June 8 at 2 p.m. Manufacturers have been asked to bid on the following passenger cars:

Quantity	Kind	Price
1 to 1000	5-pass.	\$1,000 or under
1 to 1000	2-pass.	1,000 or under
1 to 1000	touring	1,500 or under
1 to 1000	touring	2,000 or under

No awards will be made following the opening of bids but the offers and prices must remain open during the fiscal year beginning July 1, 1917. The purchase of the cars is to be made by the Government as they are required. Prices are to be quoted f.o.b. factory, and the cars are to be inspected by the Government on delivery.

One of the questions in the proposals asks specific information as to the time required for the manufacturer to ship after an order is placed.

Steamotor Trucks Use Doble Engine

CHICAGO, ILL., May 21—The Steamotor Truck Co. with a capital of \$3,000,000 has been formed in this city to manufacture steam motor trucks using the Doble equipment. The company has been licensed under the Abner Doble patents. Manufacturing arrangements have been made on a scale contemplating the production of 150 trucks per day.

Goodyear Sales \$10,000,000

AKRON, May 21—The Goodyear Tire & Rubber Co. had sales in April amounting to more than \$10,000,000. Sales in April of 1916 were \$6,519,672.15. Sales in April, 1915, were \$4,048,352.78.

Covert Gets Gray Plant

DETROIT, May 21—The Covert Gear Co. has taken over the former plant of the Gray Motor Co. which has a floor space of 56,000 sq. ft. and will use this factory to manufacture in Detroit about twice as many transmissions as are made in the Lockport, N. Y., factory.

It Will Hurt YOU

The 5% tax on YOUR business that is proposed by Congress is unjust. Tell your Congressmen so. Read pages 8, 9 and 10—and then ACT TO-DAY.

Teeth Put in 5% Tax Bill to Bite the Dealer

Would Make Dealer Pay 5% on All Cars Bought by Him From Factories Since April 6—Wire Your Senator

WASHINGTON, May 22.—*Special to Motor World.*—The war revenue measure, which originally put a tax of 5 per cent on the gross business of motor-car factories, has been amended, and even sharper teeth have been put into it in so far as the dealer is concerned.

Though the measure has been amended so that the tax shall apply only to manufacturers who show net profits on their capital invested of more than \$5,000 in excess of 8 per cent, it has been made to read that a 5 per cent tax shall be levied on all motor cars and trucks sold to dealers since April 6, and the dealer must pay the tax.

WHAT THIS WILL MEAN TO DEALERS IS MADE PLAIN IN PART BY THE FACT THAT SINCE APRIL 6 DETROIT FACTORIES ALONE HAVE SHIPPED 214,500 CARS TO DEALERS. AS THE AVERAGE PRICE OF AN OPEN CAR IS ABOUT \$1,687, THESE CARS THEREFORE ARE WORTH \$362,030,200. THE TAX ON THEM WOULD BE \$18,101,510; THIS IS EQUAL TO A TAX OF \$86 PER CAR.

Representative Frank E. Doremus of Michigan, who led the fight to have the 5 per cent tax stricken out of the war revenue bill, has stated that a separate vote may be demanded on it after the House, sitting in committee of the whole to consider the bill, has passed upon it.

A further amendment has been adopted which provides that there shall be deducted from the tax "an amount equivalent to 5 per cent of the amount paid for the tires (including inner tubes) on such vehicles, by such manufacturer, producer or importer.

Following is the amendment introduced by Representative Doremus,

which makes the tax apply only to manufacturers whose profits are in excess of 8 per cent on their capital.

"Provided, that the tax of 5 per cent shall not be collected unless the manufacturer of the article herein enumerated shall have made a profit of eight per cent upon the actual capital invested, together with the sum of \$5,000. For the purpose of this paragraph actual capital invested means:

"1—Actual cash paid in.

"2—The actual cash value at the time of payment of assets other than cash paid in.

"3—Paid in or earned surplus and undivided profits used or employed in the business."

General Manager Alfred Reeves of the National Automobile Chamber of Commerce is at present in Washington, leading the fight against the tax.

After the House of Representatives revises the measure and places its stamp of approval on it, the bill goes to the Senate Finance Committee. This committee will hold hearings at which the motor-car industry will have an opportunity to present its side of the case. From the Senate Finance Committee the bill goes to the floor of the Senate.

In the Senate there will be another opportunity for manufacturers and dealers to assail this discriminatory measure. As a general rule, the Senate is more amenable to reason than the House, and it is hoped that the weight of makers and dealers here may have the desired effect of making the Senate see the bill in its true light—that of a discriminatory piece of class legislation which puts the motor car and the motor truck in the same category with patent medicines, perfumes and musical instruments, etc.

There is yet time to defeat the bill. The important thing for every dealer in the country to do is to wire his Senator at once. Such wires should give facts and figures, and tell exactly

what the measure, if passed, will do to the dealer. Telegrams of mere protest, expressed in a general way, are almost useless; only facts will avail.

Gillette on Regular Production

EAU CLAIRE, May 19—The Gillette Rubber Co., Eau Claire, Wis., manufacturer of Gillette safety tires, is now engaged in a regular production in its new plant. The company has gathered an ample supply of raw materials for a large output and is assured of future supplies. The equipment is designed for the production of tires by the so-called chilled rubber process. A sales office has been established at 1834 Broadway, New York, and the Chicago office is located at 182 South Michigan Avenue.

Will Open Canadian Branch

JACKSON, MICH., May 17—The Jackson Motor Car Corp. will establish a plant in Windsor, Ont.

Reo Production Increasing

LANSING, May 21—The Reo Motor Car Co. produced 100 per cent more passenger cars in April of this year as compared with 1916, and the May production to date is three times as great as that of last year. The company is now producing 22 trucks a day as compared with 10 trucks per day a year ago.

Continental Dividend Declared

DETROIT, May 21—The Continental Motors Corp. has declared a dividend of 1½ per cent on the company's common stock. The dividend is the initial payment on the company's common stock since the re-organization with larger capital a few months passed. The dividend is payable June 15 to stockholders of record on June 5.

Dail To Make Accessories

LANSING, May 21—The Dail Steel Products Co. is erecting a new factory addition and office building. The company was recently recapitalized for \$100,000. It will branch out into the automobile accessories business.

New Terms for Trucks

NEW YORK, May 14—It has been decided by the Standards Committee of the S. A. E. and the Department of War, that military trucks hereafter shall be designated by letters instead of by capacity figures. Wherefore, the 1½-tonners will be class A and the 3-tonners, class B.

All-Season Elects Officers

MARSHALL, MICH., May 19—C. W. Whitmore of the body department of the Packard Motor Car Co. is resigning to become president of the All-Season Body Co., Marshall, Mich. J. A. McAvoy is elected vice-president and F. R. Bothwell, secretary. The company closed a \$250,000 contract for 7500 bodies for the Briscoe Motor Corp. and is also making an experimental top job for the Chevrolet Motor Co.

You Must Act NOW

TO-DAY—and NOT to-morrow—you must write and wire your Congressmen if you want to defeat the unjust 5% tax on YOUR business. Read pages 8, 9 and 10—and then ACT.

Boston Trade Holds Big All-for-America Meeting

The High and the Low Mingle in Union of Patriotism in Historic Paul Revere Hall

BOSTON, MASS., May 22—A big patriotic meeting arranged by the officials of The Boston Automobile Dealers' Association took place here this evening at Paul Revere Hall, Mechanic's Building. It was attended by more than 1000 men and women. The presidents of various companies rubbed elbows with the boys in the stock rooms; stenographers fraternized with repairmen; salesmen and service superintendents hobnobbed; automobile, tire, accessory and garage people all met on an equal footing in the cause of the United States.

President J. H. MacAlman of The Boston Automobile Dealers' Association presided. The hall was decorated with flags, and as the people came into the hall they were presented with small flags by a committee directed by Chester I. Campbell, manager of the automobile shows. President MacAlman outlined the cause of the war, and spoke of observations which he made while on a trip to Europe a few years ago. He then introduced as the first speaker B. F. Griffen of The Boston News Bureau. Mr. Griffen's topic was, "What the War Means to You, and What You Should Do About It."

President Josiah S. Hathaway of the Boston Commercial Vehicle Dealers' Association was next introduced. He is a Major in the Massachusetts National Guard, and he explained that those who thought this war was a joke would get a serious awakening later on.

President W. E. Bates of the Massachusetts Garage Association spoke on behalf of the garage workers. Wallace G. Page represented the accessory men and Howard R. Limric the tire industry. They both pledged the allegiance of their forces. There was a great wave of enthusiasm apparent.

When the meeting was closing President MacAlman announced that the automobile industry could be depended upon to do its duty, and he asked for subscriptions to Liberty Loan bonds. It was arranged by a committee to finance subscriptions through the new automobile bank about to be opened here. Many of the people subscribed, and some who had previously bought bonds decided to take more.

Hoppe-Hatter Banquets Its Men

MILWAUKEE, May 18—The Hoppe-Hatter Motor Co., state distributor of the Paige, tendered a banquet of 150 covers, served on the main floor of its sales and service building, on Thursday evening, May 17, to its sales organization. Francis A. Cannon, executive secretary of the Wisconsin Good Roads Association, acted

as toastmaster. The principal speaker was Henry Krohn, sales manager of the Paige factory, who predicted that the war will have a highly favorable effect upon the motor car industry and that the retrenchment hysteria and tendency toward false economy noted in some lines of business, since the declaration of war, has not injured the motor vehicle business, but in fact has accentuated its progress.

The banquet was in the nature of a dedication of the new Paige building, erected by the Hoppe-Hatter Motor Co. for the exclusive purposes of the Paige business in Wisconsin and Milwaukee. City officials were invited guests. The affair was in the personal charge of A. C. Hoppe, president and general manager, and Roy C. Bond, sales manager of the Hoppe-Hatter company. The guests included B. G. Sykes, of the Bird-Sykes Co., Chicago, Illinois distributor of the Paige; C. W. Payne, of the Payne Motor Car Co., Des Moines, Ia.; F. E. Murphy, of the F. E. Murphy Auto Co., Minneapolis, and H. B. Knudsen, of the H. B. Knudsen Auto Co., Duluth.

New York Marmon Branch Sold

NEW YORK, May 19—The Marmon branch in this city has been sold to the Marmon Motor Car Co. of New York. This company is a new organization, with T. B. Van Alstyne, formerly advertising manager of the Class Journal Co., as president; F. G. Carrie, former manager of the Marmon branch, as secretary, and Chas. H. Larson, one of New York's most successful dealers, and now handling the Oldsmobile, as treasurer. The new company has taken over the leases of the Marmon branch, and will occupy the new salesroom at Broadway and Sixty-second Street June 1.

New Law in Delaware

WILMINGTON, DEL., May 18—Amendments to the Delaware motor law, enacted at the session of the legislature last winter, became effective this week, the changes being as follows:

Instead of a flat fee of \$5 for registration of all motor vehicles (other than motorcycles), a fee of \$2 for each 500 pounds, or fractional part thereof. Where the motor vehicle is a pleasure car the weight of the car will be added to the passenger capacity weight (125 pounds being allowed for each passenger), and where a commercial car, the weight of the vehicle and the carrying capacity will be added. If the vehicle is of the convertible type, that is, carrying passengers as well as merchandise, the weight of the vehicle and the weight of the passengers are to be added, on the one hand, and the weight of the vehicle and the carrying capacity are added, on the other hand, and whichever combined weight is the greatest, the registration fee is based thereon.

Dealers' registration certificates will be issued only after a mercantile license has been taken out, showing that the applicant is a bona fide dealer and has an established place of business. The fee in the first instance is \$20, all subsequent issuances being \$10.

Dealers' tags will not be permitted to be used on taxicabs or motor vehicles for hire.

St. Louis Is Going to Try a Used Car Market

McQuiston, Former Chalmers Man, Forms Company and Aims to Work with All Dealers

ST. LOUIS, May 19—The Used Car Exchange Co. was formed here last week for the purpose of handling the used cars taken in by the Park Automobile Co. and the Missouri-Packard Co. H. P. McQuiston, recently used car expert for the Chalmers Motors Co., Detroit, is manager. The Park Co. is distributor for the Chalmers and Peerless and the Missouri Packard company handles the Packard. These two companies are reputed to be two of the largest trading companies in the city.

McQuiston, who has had experience with used car problems in almost every city in the country where he went as representative of the Chalmers company to aid distributors, says he is in St. Louis to stay. His plan, he says, is to make the Used Car Exchange Co. the one big used car market of the city. He is now considering offers from other distributors having a large trade-in business to handle their cars.

"To my mind, the single market is the solution of the used car problem," said Mr. McQuiston. "In this business I will have a regular schedule for all used car service. I will buy cars outright. I will value them for other companies for a fixed fee. I will put a price on them for another company and take them off their hands at that figure. Of course, we expect to do more or less work on these cars and sell them at a profit."

"I already am arranging for sales agencies. One will be in East St. Louis, another in South St. Louis, at 2590 South Jefferson. I expect to have other places where I will display and sell cars. To introduce the company and to get the stock of the two companies we are working for down to a rock-bottom basis, I have erected a tent at 1614 Locust Street, where we have about 20 cars on display. We have had a good business this week as a result of advertising and a general gingering up of the selling forces." In the near future McQuiston will open a truck department.

Thompson Heads Abbott

CLEVELAND, May 19—Alfred Thompson has been elected president and general manager of the Abbott Corp., succeeding Guy W. Morgan, who recently resigned. Thompson was at one time manager of the Pope-Toledo Co., later manager of the plant of the Rutenber Motor Co., following which he was production manager for the Maxwell Motor Co., Inc. Lately he has been the production manager of the Hudson Motor Car Co.

Chicago Used Car Show Figures Prove Success

Cars Sold, 369—And Those Sold in the Show Brought \$230 More Than Those Sold Outside

CHICAGO, May 18—Having had time to compile statistics regarding the Used Car Show held by the Chicago Automobile Trade Association, the committee report as follows:

Total receipts \$12,948.58
Total disbursements 8,503.45

Profit \$4,484.13
Total free attendance..... 17,785
Total paid attendance..... 7,366

Total attendance 25,151

Business Done

		Value
Used cars sold on Coliseum floor	216	\$170,161
Used cars sold at salesrooms	113	62,883
New cars sold at salesrooms	40	42,781

Total 369 \$275,825

The record is compiled from reports made direct to the show committee by the respective exhibitors, and does not include truck and accessory business.

Average price used cars sold at Coliseum \$787.75

Average price used cars sold at salesrooms 556.48

Dodge Gives Yacht to U. S.

WASHINGTON, D. C., May 19—The Navy Department has just received as a patriotic gift the 180-ft. steam yacht "Nokomis I" from her owner, Horace E. Dodge, a member of the firm of Dodge Brothers, automobile manufacturers of Detroit. The "Nokomis I," said to be worth \$250,000, will be a valuable acquisition to the Navy's fleet of fast boats, and is to be brought at once via the Lakes and the St. Lawrence to the Atlantic Coast for refitting.

Denver Turns to Gardens

DENVER, May 19—The national preparedness program received special recognition in Denver to-day by the Car Dealers' Division of the Automobile Trades Association of Colorado, in the form of an official Thrift Garden Day. Twenty-six dealers took part by closing their places of business entirely or in part and giving themselves and their employees a chance to devote the day to making gardens.

Troy Holds an Auction

TROY, N. Y., May 17—The first auction sale of used cars took place last

Saturday at the headquarters of the Troy Used Car Sales Corp. last week. The auction attracted a good many buyers, but only four cars were disposed of because of the fact that the bidders did not bid up to the amounts the car owners thought should be secured for the cars. The cars actually sold were an Overland 1911, 5 passenger, for \$100; Buick 1911 touring, 5 passenger, for \$105; Briscoe 1915 touring, for \$325, and an Overland 1915. "80" touring, for \$325.

Smith Enters Service

CHICAGO, May 19—M. A. Smith, mechanical engineer Standard Oil Co. of Indiana, who has been reserve officer in the infantry, has become first lieutenant in the Marine Corps, taking active service on the first day of the war.

Tractors May Show on Both Coasts

PEORIA, May 18—The National Tractor Farming Demonstrations is considering tractor demonstrations in California and Massachusetts this year. These will be sanctioned, provided dealers in these localities put them on without expense to the association and operate according to the association's tractor demonstration rules. A demonstration is scheduled for Fremont, Neb., Aug. 6-10.

Delion to Expand

TRENTON, N. J., May 19—The Delion Tire & Rubber Co. is having plans prepared for a second-story addition to its plant, 50 by 112 ft., to cost about \$10,000, and for a new reinforced-concrete extension, 20 by 60 ft., to cost \$7,000.

Champion To Talk on Plugs

FLINT, MICH., May 18—Albert Champion of the Champion Ignition Co. will present a paper on spark plugs before the Indiana section of the Society of Automotive Engineers on Friday, May 25. The paper will deal with the close relation of the efficiency of the motor to the spark plug.

New Zealander Visits America

NEW YORK, May 18—J. B. Clarkson, one of the leading importers of automobiles and accessories in Wellington, New Zealand, arrived to-day. Mr. Clarkson is with Messrs. Hope, Gibbons Sons & J. B. Clarkson, Ltd.

Oppose the Unjust Tax

The proposed 5 per cent tax on cars, including those in your warehouse, may put YOU out of business. Write and wire your Senator and Representative to oppose it in Congress. Read pages 8, 9 and 10.

Tire Makers Are Going To Have an Association

About 40 Get Together in New York and Discuss the Matter—Standard Contract Likely

NEW YORK, May 19—A tire manufacturers division of the Rubber Association of America is to be organized. Representatives of about 40 of the principal tire companies approved such a move at a meeting held yesterday at their request.

The new division will be similar in organization and purpose to other existing divisions of the association, such as those including mechanical goods manufacturers and makers of rubber and fiber soles for shoes, etc. It will take up the problems peculiar to tire manufacture with a view to solving them in a manner acceptable to all. Formal organization likely will be completed in about 3 weeks.

H. S. Firestone, president of the association, presided at the meeting, which also went on record in favor of adopting a standard contract clause covering fluctuations in the prices of tires. This clause provides that if the manufacturer finds it possible to reduce prices to the dealer, he will give the dealer the benefit of the reduction; similarly, if the manufacturer increases prices, the dealer is to have the choice of accepting the balance of unfilled contracts at the advanced price, or of cancelling the balance of the contract.

Canada and R. I. at Peace

PROVIDENCE, R. I., May 21—Motorists of Rhode Island will be able to spend their vacations in the Province of Quebec this summer without being required to pay a registration for their car during a brief stay. The same privilege is accorded the citizens of that part of Canada to come into this state. The state legislature passed an amendment to the law granting reciprocity. This is the only section of Canada which has a law barring Rhode Islanders unless this state grants the same right which is 10 days.

Chevrolet Men Eat in Newark

NEWARK, May 18—Chevrolet representatives from 18 cities dined together at the Robert Treat Hotel. The cities represented were: Baltimore, Boston, Brooklyn, Camden, Frankford, Freehold, Hightstown, New Haven, Newark, New York, Philadelphia, Providence, Red Bank, Richmond, Stamford, Washington, West Philadelphia and Worcester.

Correction

In the April 25 issue of Motor World in an advertisement by the Stegeman Motor Car Co., Milwaukee, Wis., the models of its motor trucks were given as 2, 3, 4, 6 and 7 tons capacity. It does not make a 6-ton model, the 6 should have been 5.

Truck Accessories Are Now to Be Standardized

S.A.E. and War Department Men Look Over Field and Make Sug- gestions for Army Service

WASHINGTON, May 18—An effort is to be made to standardize certain truck accessories. A meeting for that purpose was held here Monday by the truck standards committee of the S. A. E. and representatives of a dozen or more truck factories and the War Department.

The work centered around such matters as front and rear bumpers, towing hooks, seat arrangements, large gasoline tanks, magneto straps and couplings, radiator guards, and other matters with regard to dust collectors for the carbureters and generator mountings. The work consisted largely of finding out what can be done along these lines, and also in the representatives of the Quartermaster's Department laying before the manufacturers what it considered necessary in this work.

The department submitted general drawings showing the scheme of seat for military trucks, which accommodated beneath it the 30-gal. gasoline tank, as well as the tray for holding the battery. The seat accommodates four persons.

Towing hooks will be required for four-wheel drive trucks, which, it is understood, are the only ones that will draw trailers. The ordnance type of towing hook has been agreed upon.

For two-wheel drive trucks the front bumper is to be a heavy channel section backed up by springs. The rear bumper is a large ash or oak piece 56 in. long and of 3 by 8 in. section.

The 30-gal. gasoline tank is made with two reserve compartments of 6 gal. each. A three-way drain allows of using one and then the other of these reserves. The drain cap always insures one of the reserves being in use, even if through carelessness the other one might not be.

A standard type of magneto strap for holding the magneto on its seat was agreed upon, as also was a form of magneto coupling. While these two cannot be looked upon as standards, it is understood they will be preferred on all military trucks.

The radiator guard is the European design, similar to that furnished by several of our truck makers who have been furnishing European governments with military vehicles. It is a substantial prison-bar grating type.

The truck manufacturers present agreed to co-operate on the matter of generator mounting, and also on the problem of securing a satisfactory dust collector for the carbureters. Nothing specific in either matter apparently was submitted and Captain Britton, of the Quartermaster's Department, expects that, through the co-operative work of the truck makers, some possible style to be preferred will be developed.

Litscher Heads Association

GRAND RAPIDS, MICH., May 19—C. J. Litscher of the Litscher Electric Co. was elected president of the Automobile Business Association to succeed Ray E. Becker, who has served for 2 years and who declined to be considered

a nominee for another year. W. K. Philp of the Valley City Motor Car Co. was elected vice-president to succeed Carl Palmer. The board of directors includes: George Beelby, Paul Gee, M. D. Elgin and F. W. Kehlet. E. T. Conlon remains as secretary.

Heavy Taxes in Texas

DALLAS, TEX., May 19—The tax on cars in Texas is getting to be an expensive luxury. This year will see the tax more than doubled and it is estimated that on cars valued at \$250 it will amount to between \$16 and \$20 per year. Here is what the tax will be: State and county tax, average \$1 on the \$100 valuation; city tax, average \$1.90 on the \$100 valuation; minimum tax under state highway commission bill \$7.50 per car (or 35 cents per horsepower), and 5 per cent war tax, making a total of \$17.25.

New Connecticut Laws

NEW HAVEN, May 19—Connecticut now has a new motor vehicle law and a commissioner to handle the department. Robbins B. Stoeckel is the commissioner and he has appointed John MacDonald as his deputy. The new law has a lot of extracts from the old law, but there are some new sections relating to operation, penalties, etc. The commercial vehicle fees have been increased, but the passenger car registrations are still 50 cents per horsepower. Some limitations have been placed upon the dealers, and the non-residents are not limited to any specific number of days. The motor vehicle commissioner has broad powers to suspend licenses and give hearings, but any motorist may appeal from his decision to the judge of a Superior court.

Oregon Trade Is Holding Up Well

PORTLAND, ORE., May 19—The prosperity of the Oregon country is reflected in comparisons just completed, which show that 30 per cent more cars were sold for the first 5 months of 1917 than for the corresponding period last year.

The figures show that 24,929 motor vehicles were registered in Oregon between December 1, 1915, and May 1, 1916, while for the five-month period ending May 1, 1917, 34,790 cars were registered. The gain in favor of this year is 30 per cent.

New registrations numbered 3850 for the 1916 series and 5307 for the 1917 series, showing a gain over 1916 of 1457 cars. In other words, there has been a gain in new business over the first 5 months of the 1916 series of 30 per cent.

Twenty-four out of 38 makes of pleasure cars show an increase ranging from 913 Fords down to one. Twelve makes out of 38 show a loss of from one to 76 cars. Two makes show exactly the same increase as last year.

Commercial cars show an increase of 136 per cent over the 1916 period.

Here's a New Gasoline Substitute; 10c. a Gal.

Nuoline Is Being Tested in a New York Laboratory—It Seems to Give Good Results

NEW YORK, May 19—Experiments are being made at the West Side Y. M. C. A. Automobile School with a new automobile fuel called Nuoline, put forth as a substitute to sell at 10 cents a gallon. Louis Clemont, the inventor, a Danish chemist, says the ingredients are cheap, and that two-thirds of the liquid is water. The liquid is milky white. A road test of 415 miles has just been concluded, a car having been run to Albany on the east side of the Hudson, and then to Schenectady and Utica, returning on the west side of the river via Newburgh and the Fort Lee ferry. The average was 11 m.p.g. Other tests have shown a smoother running engine.

Response to the accelerator with Nuoline was better than with gasoline. There were no fumes from the exhaust, but a faint odor of camphor, which was explained to be coal camphor from one of the ingredients used in the manufacture of the fuel.

A company is being organized to manufacture Nuoline commercially. The president will be Senator Robert Lawson, of Brooklyn. Associated with him will be H. C. Brokaw, M. Clemont, Dr. H. O. Lehman and H. Boes.

S. A. E. Meeting June 25-26

WASHINGTON, May 21—The Society of Automotive Engineers will hold an informal dinner at the New Willard Hotel Tuesday evening, June 26, according to details of its meeting which have just been arranged. The dinner will be \$6 a plate. The meeting will begin Monday and the professional session will be held Tuesday. Eight hundred members are expected.

Another Used Car Exchange

INDIANAPOLIS, May 21—A meeting of automobile dealers was held at Fort Wayne, Ind., last week at which plans were formulated for the establishing of a used car market. According to the plans all dealers would place their used cars in one building and select a competent man to have charge of the establishment. The location of the salesroom has not been decided upon, but the dealers say their plans will be placed in effect.

Crum Gets Bucrum Carrier

LAFAYETTE, Ind., May 21—The equipment and patent rights of the Bucrum Mfg. Co., Peru, have been purchased by W. S. Crum and will be moved here. The company makes a tire carrier for Fords. Under the new policy, this carrier will be manufactured so that it can be attached to any car.

New Models and Prices Keep the Makers Busy

Changes in Equipment, Line and Price Found in Many Spots in the Motor Industry

NEW YORK, May 21—Several changes in equipment have been made during the last few weeks by the automobile makers. Locomobile is now using the Berling magneto. Marmon has changed from 34 x 4½-in. to 32 x 4½-in. tires. Jeffery has taken on Delco ignition on the six-cylinder model, and has also changed the stroke on that model from 5¼ to 4¾ in. Partin-Palmer has added two new models to its line known as Ultra-4-Forty five-passenger touring car at \$885 and the Ultra-4-Forty Chummy roadster at \$895. The specifications of these two models are the same as the model 32.

Jackson Adds a Sedan

JACKSON, May 19—A new sedan has just been brought out by the Jackson Automobile Co. and mounted on the chassis of the Wolverine eight. This is a two-door, divided seat car. The rear seat accommodates three and there are auxiliary chairs for additional two passengers. A feature of the rear seat arrangement is the form-fitting back and arm rests. There is a wide aisle between the front seats and liberal knee room between the rear seat and the auxiliary chairs. These bodies are built in the shops of the Jackson company under license from the Springfield Metal Body Co. The interior finish is in gray coach cloth, or in long-grained leather, as desired. The upholstery is the French piping, with no tufts or buttons. The car will sell for \$2,095.

Velie and Jeffery Prices Up

NEW YORK, May 21—Velie prices have gone up on the coupe and sedan on model 28. The coupe has gone up from \$1,750 to \$1,800, the sedan from \$1,685 to \$1,735. Jeffery prices on the detachable top models in the four and six have gone up from \$1,260 to \$1,320 on the four and from \$1,630 to \$1,690 on the six. Westcott has raised its price \$100 on the sedan, which is now quoting at \$2,390.

Chandler Up \$200 June 30

CLEVELAND, May 21—The Chandler Motor Car Co. will raise its prices \$200 on June 30. On that date the seven-passenger touring car becomes \$1,595; the four-passenger roadster becomes \$1,595; the seven-passenger convertible Sedan, \$2,295; the four-passenger convertible coupe, \$2,195; and the limousine, \$2,895.

New Era Raises Prices

DETROIT, May 21—The New Era Spring & Specialty Co. has increased prices on tire carriers 25 per cent, which it states it had to do or else quit selling them. The list prices for last year

were based on a steel market of \$2.10 for flat stock. Last fall the price went to \$3.85, to \$4.50 before January 1, to \$5.25 shortly after January 1, and to \$6.10 March 7; the price now is \$8, and is expected to be \$11. A previous raise on the Interchangeable type, of 30 cents, was made last fall, and the cradle type was not raised at all. These new prices are effective May 10 to August 1.

Dixie Increases Prices

LOUISVILLE, KY., May 18—The Dixie Motors Car Co. has increased its prices as follows effective June 1—five-passenger touring, \$845 to \$895; four-passenger roadster \$845 to \$895; five-passenger convertible sedan, \$1,275 to \$1,295. The standard Model L, series 2 remains unchanged at \$795.

Diamond T All Set

CHICAGO, May 19—Production and sales departments of the Diamond T Motor Car Co. are now well organized. G. A. Gibson, formerly with the Packard company, has complete charge of the entire production, and is assisted by P. W. Herman, assembly superintendent. W. F. Bird has charge of the finishing department; Carl Burton has entire charge of the material, and F. Lundgren is superintendent of the machine shop. D. W. Jones is chief engineer and H. C. Emberson is chief purchasing agent.

The sales force has been entirely reorganized, with F. J. Pardee at its head. J. S. Conroy has been appointed district sales manager. J. P. Burris, just resigned from the Packard company, will take charge of all national business. R. E. Breeden is special territory man for appointing distributors.

80,000 A. C. Plugs a Day

FLINT, MICH., May 19—The Champion Ignition Co. has completed arrangements to turn out 80,000 A. C. spark plugs daily hereafter. Other factory additions will be made to bring this production even higher.

Eagle with Rotary Motor

INDIANAPOLIS, May 21—The Eagle Macomber Motor Car Co., of Gary, Ind., has placed a car on the market equipped with a rotary motor which is cooled by air. The company claims that its motor has more than 200 fewer parts than the ordinary reciprocating type of engine. The first car made by the company has been placed on display at Gary. Production will begin July 1. Frank E. Barnes, superintendent of the King factory, has been made production manager of the Eagle Macomber works.

Demand Fair Play

The 5 per cent tax hits YOUR business and skips a lot of your neighbors. It is class legislation. It will hurt you. Write and wire your Senator and Representative to oppose this tax in Congress. Do it TO-DAY. Read pages 8, 9 and 10.

Bell Brings Out a Four That Will Sell at \$875

Sells as a 5-Passenger Touring Car or a 4-Passenger Roadster— Detachable Head; 3½ x 5

YORK, PA., May 19—A four-cylinder, 35 hp. car, selling at \$875 and made up into a five-passenger touring car and a four-passenger roadster, styled Model 17, has been brought out by the Bell Motor Car Co., York, Pa. It has a 3½ x 5 block engine with a detachable head.

Lubrication is by constant level splash with plunger pump operated by a special eccentric on the camshaft. Valves are 1½ in. in diameter, with 45-deg. seats, with the head of cast iron electrically welded to a high carbon steel stem. The crankshaft is of 40-50 carbon steel alloy, double heat treated, drop forged and balanced, and the camshaft is of 1 in. diameter, case hardened. Atwater-Kent ignition, thermo-syphon cooling and Zenith carbureter are used.

The gearset is a 3-speed Covert, with nickel steel gears and shafts and roller bearings on the drive shaft and countershaft. The Borg & Beck single dry disc 8-in. clutch is used. Dyneto two-unit starting and lighting with Bendix drive and a Willard storage battery are used.

A pressed steel 20-30 carbon steel channel section 4½ in. high frame is used. The upper half of the rear spring bracket is integral. There are three cross members, including a front member under the radiator. The front axle is of I-beam design, while the rear axle is full floating, with inspection plate at the rear, and annular bearings. The wheelbase is 112 in.

The steering gear is a Lavine and is irreversible and adjustable for wear. Wheels are 31 x 4. Brakes are external contracting for service, and internal expanding for emergency. Both brakes are 12 in. in diameter with a 2-in. face.

Stephens Makes Changes

FREEMPORT, ILL., May 19—Changes have been made as follows among heads of departments of the Stephens Motor Car Co.: H. C. Dunning, assistant manager, has resigned, and has been succeeded by C. B. McCool. L. J. Dudley, who has been superintendent of the body plant, has been promoted to general superintendent of the company. H. B. Bell, who has been manager of the service department, has resigned to enter the army, and has been succeeded by E. H. Snively, formerly purchasing agent. O. T. Lawson has been appointed purchasing agent, with H. A. Story as assistant.

2414 New York Dealers

ALBANY, N. Y., May 21—Automobile registrations in this State up to May 1 reached 246,527, omnibuses 7483 and commercial vehicles 39,197. There were 2414 dealers.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

G. M. Bicknell has been appointed sales engineer of the Carter Carburetor Co., St. Louis, with entire charge of the factory sales in and around Detroit and of all of the company's engineering work in the field. Bicknell has been associated with the Carter Carburetor Co. since shortly after it was organized. He will make his headquarters at 836 Brush Street, Detroit.

George F. Adams, for 11 years with the Fisk Rubber Co., has joined Robert Graves, Jr., who has opened a distributing agency for Gryphon tire.

R. F. Anderson will become body engineer of the Hayes-Ionia Co., Ionia, Mich. He was formerly in the body engineering department of the Packard Motor Car Co.

W. D. Bell has been appointed superintendent of employment for the Parker Rust-Proof Co. of America, Detroit.

Frank M. Langdon, assistant advertising manager of the Cadillac Motor Car Co., Detroit, has reported at Fort Sheridan, Ill., for training in the officers' corps.

W. O. Briggs, president of the Briggs Mfg. Co., Detroit, has enlisted in the United States army and will serve in the special service department.

H. Russell Brand has been appointed business engineer of the Springfield Body Corp., Springfield, Mass.

W. H. Taneyhill has been promoted from manager of the central district to assistant general sales manager of the Scripps-Booth Corp., Detroit.

J. F. Keyes has been appointed engineer for the Standard Parts Co., Cleveland. Keyes was formerly experimental engineer of the Cadillac Motor Car Co.

S. M. How has become general sales manager of the Haynes Automobile Co., Kokomo, Ind. He was Eastern sales representative and has been with the company for 8 years. H. W. Prine, formerly of the Pathfinder company, will succeed him as sales representative.

C. McElfresh is now in charge of the motor department of the Republic Motor Truck Co., Alma, Mich. He was formerly production manager at the Muskegon plant of the Continental Motors Corp.

L. W. Swords has been appointed general field sales supervisor, director and vice-president of the Wallace C. Hood Service Bureau, Detroit. Swords was formerly factory representative for the Maxwell Motor Co.

A. N. Goodfellow has been appointed Western sales manager of the Standard Roller Bearing Co., with headquarters in Detroit.

M. L. Alfont, Detroit, has become superintendent of the factory of the Jones Motor Car Co., Wichita, Kan.

Robert H. Patchin has resigned as secretary of the National Foreign Trade Council to become affiliated with W. R. Grace & Co., New York. O. K. Davis succeeds him.

J. H. McConnell has taken charge of the sales department of the Shotwell Pump &

Tank Co., Indianapolis. He was formerly with the S. F. Bowser Co. and later with the Wayne company.

W. G. Gernandt, formerly motor engineer with the Amalgamated Machinery Corp., has opened an office as consulting automobile engineer in Chicago.

E. W. Jordan has resigned as chief of the plan and copy departments of the Cramer-Krasselt Co., Milwaukee, and has joined the Bigelow-Waggoner Co., advertising agents, Indianapolis, in the capacity of vice-president, in charge of plan and copy departments. Jordan was at one time in charge of the Warner Instrument Co. advertising and later with the Curtis company in Detroit.

C. L. Lane, formerly secretary of the United States Lighting & Heating Corp., Niagara Falls, N. Y., is now vice-president and general manager, succeeding A. H. Ackerman, resigned. J. A. White, formerly Chicago branch manager, is now sales manager of the battery division, succeeding C. C. Bradford, resigned.

H. H. Harris has been appointed district manager of the Central States for the Barley Motor Car Co., Kalamazoo, maker of the Roamer. Robert Lanzing has been appointed special factory representative, covering the major portion of the South and Southwest.

B. P. Y. Jordan has become managing director of sales of the Bell Motor Car Co., York, Pa. H. F. Gundrum is in charge of the service department.

Frank B. Ruoff, formerly in charge of the Metropolitan sales territory for the Klaxon Co., has been given charge of the Klaxon equipment business in Detroit with headquarters in the Dime Bank Building. Ruoff supplants H. R. Williams, who recently resigned.

H. G. Fitch has been appointed director of service for the Willys-Overland Co., Toledo.

K. R. Jacoby, formerly service manager of the Willys-Overland Co., has been appointed assistant sales manager.

Frank E. Sangbush, for several years connected with the Abbott-Detroit Motor Car Co., Cleveland, has resigned from the sales managership of that concern to become resident sales manager of the Columbia Motors Co.

Lawrence Moore, vice-president of the Detroit Weatherproof Body Co., has joined the Officers' Reserve Corps at Fort Sheridan, Ill. He temporarily relinquishes his duties until the close of the war.

M. G. Farnsworth, formerly northwestern sales representative for the Abbott Corp., has resigned to form the Farnsworth Motor Car Co., Seattle, which will distribute the Saxon and Abbott cars and Denby trucks.

A. C. Bagby has become credit manager of the recently formed credit department of the Motor and Assessor Manufacturers. Bagby is credit manager of the Hess-Bright Mfg. Co., Philadelphia. He will be in charge of the work of enlarging and extending the credit service of the association.

A. T. Smith, who for three years has been manager of the Los Angeles branch of the Firestone Tire & Rubber Co., has been appointed manager of the San Francisco branch to succeed E. S. Firestone, who has been transferred to Pittsburgh. It is understood that the position of Pacific coast sales manager will be created by the Firestone company soon, and Smith will be appointed

to this position. He is succeeded by H. E. Flickinger, who has been the Arizona state salesman.

L. W. Kennedy is now special truck tire representative of the United States Tire Co. in the Southern District. His headquarters are in Atlanta.

Fred L. Gayton, formerly with the Goodyear Tire & Rubber Co., has joined the United States Tire Co. He is in the truck tire department and will have headquarters in New York.

W. C. Butler, Tacoma, Wash., has been appointed manager of Chanslor & Lyon Co.'s wholesale accessory branch, to succeed R. W. Schnack, resigned.

William O. McKay, retail sales manager of the Pacific Kissel-Kar branch in Seattle, has been appointed a member of the Officers Reserve Corps, and has left for training quarters at the Presidio.

Roy William Crosby, for two years manager of the Seattle branch of the Locomobile Co. of America, has resigned to devote his time to the development of the Almen-Crosby motor, which he has helped to perfect.

F. W. Hughes has been appointed production manager of the Indiana Motor Truck Co., Marion, Ind. He was formerly Detroit resident engineer for the Covert Gear Co.

Lowell C. Freeman has been appointed chief engineer of the Fuller & Sons Mfg. Co., Kalamazoo, Mich. He was formerly chief engineer of the Denby Motor Truck Co.

F. B. Clark has been promoted to the position of general supervisor of districts for the Scripps-Booth Motor Car Corp.

Herbert D. Allee has been elected assistant treasurer and comptroller of the Hayes Mfg. Co., Detroit.

G. A. Holder has been appointed general auditor of the Harroun Motors Corp. He was formerly special auditor for the Maxwell Motor Car Co.

Frank M. Eldredge has been elected secretary and treasurer of the Wallace C. Hood Service Bureau. He will continue as director of advertising and publicity of the company.

C. E. Callender, who was secretary of the Olympian Motors Co. of Pontiac, is now the president of the Olympian Motors Sales Co. of Chicago.

C. F. Clark, who for several years has been general manager of the Michigan Electric Welding Co., and a director of the Steel Products Co. of Cleveland, has resigned to become a member of the Officers' Reserve Corps.

Joseph Ward has been made district manager of the United States Tire Company, with headquarters in Indianapolis. He was formerly connected with the Waverly Co.; served as assistant sales manager of the American Motors Company, and in 1915 became a special factory representative of the United States Tire Company.

Goodyear Makes Promotions

AKRON, May 19—The Goodyear Tire & Rubber Co. has made the following promotions:

C. M. McCreery, formerly assistant manager of the Chicago district, is now special manufacturers' representative for that district. W. S. Boone, formerly supervisor of city sales in Philadelphia, is now special manufacturers' representative for the New York district. G. H. Barmore has been transferred from branch manager at Milwaukee, Wis., to assistant manager of the Chicago district. A. J. Sears, formerly branch manager at Sioux City, Iowa, succeeds Mr. Barmore as branch manager at Milwaukee. W. A. Ziegler has been promoted from city salesman at Milwaukee to branch manager at Sioux City, Iowa.

Fight the 5% Tax

Don't let TO-DAY go by without writing and wiring your Senator and Representative to oppose the 5% tax on YOUR business. Read pages 8, 9 and 10. ACT TO-DAY!

Heavy Oil Engine for Motor Cars Is Coming

Engineers Hear That Diesel Type Can Be Developed—How to Use Kerosene Is Explained

NEW YORK, May 19—Passenger cars, motor trucks and even airplanes may yet be propelled by heavy-oil, high-compression engines such as the Diesel. In fact, a Junkers engine of this type already has been constructed in Germany, and has given one horsepower for every 3½ lbs. of weight.

This is the important message which Henry G. Chatain, of the General Electric Co., brought to the monthly meeting of the Metropolitan Section of the Society of Automotive Engineers last Thursday night.

Chatain stated that although present types of these engines are not suitable for road and air propulsion, there is no really inherent reason why an engine of this kind could not be built and operated successfully. Chatain's paper was entitled "Treatment of Hydrocarbon Fuels," and was essentially an analysis of the manner in which heavy fuels are converted into energy in the cylinders of an internal combustion engine.

Intensive Study Necessary

If such an engine is to be produced, Chatain pointed out, it will require that the basic principles underlying present types be studied and carried out in the proper manner, and that a careful study be made of all mechanical parts, and very likely a redesigning of devices for converting the fuel into a gas. Two of the things which will accelerate the development of these engines will be the fact that they operate on ½ lb. of fuel per brake horsepower hour, and that the price of fuels is tending to increase.

Chatain's paper followed another which was read by Philip Lane Scott on the design and construction of the Junkers engine. This is a Diesel type having two cylinders to each piston with the gas expanding between them and thus driving a three-throw crankshaft through suitable external connecting-rods or gearing.

Both Scott and Chatain seemed agreed that there are far greater possibilities in the development of a Diesel type or semi-Diesel type of engine for road and air propulsion than there is in the development of devices for the use of kerosene in present engines or engines slightly modified to use this fuel.

With regard to alcohol, Chatain stated that we had not made any experiments with this fuel for the reason that there had been no wide demand for it. He stated further that owing to existing laws which require that denatured alcohol remain in bonded warehouses for a considerable time, the small producer is virtually cut off from this market. Until these laws are amended, it is entirely too expensive for small pro-

ducers to turn waste material into alcohol.

Chatain offered as his opinion that the only way to use kerosene efficiently is to employ some device which will convert it into a fixed gas rather than a fog. With the fog, he stated, it is not possible to obtain a sufficiently complete degree of oxidization for efficient combustion; a good device would have to operate much like a gas producer.

The kerosene carbureter that is essentially the same as a gasoline carbureter, he said, is entirely inadequate, for the reason that applying heat in the manner it is now applied reduces the efficiency of the engine by decreasing the volume of mixture which is inspired. It was suggested that a more logical solution of the problem appeared in the distillation of crude at a somewhat higher temperature so as to utilize much of the content which now comes off in the form of commercial kerosene.

NEW YORK DOBLE DISTRIBUTER

NEW YORK, May 19—The Doble Steam Car Distributors of New York, Inc., has been formed to handle the Doble steam car in territory including the Metropolitan area, Westchester, Long Island, Northern New Jersey and part of Connecticut. E. H. Presbrey, president of the Investigating Corp., a financing concern which is financing the new company, will be its president, and the capitalization likely will be \$200,000. Final details regarding the formation of the company have not been completed as yet. Temporary offices have been opened at 50 Broadway Street, New York. It is proposed to open salesrooms in New York in September and later to appoint dealers throughout the territory controlled by the company.

Ben Hur in Receiver's Hands

CLEVELAND, OHIO, May 18—The Ben Hur Motor Car Co., capital \$1,000,000, incorporated in Delaware, and with its factories and offices at Wiloughby, Ohio, is in the hands of a receiver. Charles P. Moore of Cleveland has been appointed receiver. Inability of the company to obtain materials is said to have hampered its activities.

Scrap Metal Prices

NEW YORK, May 19—Following are prices paid by New York dealers for scrap metal during the past week. They are from *Iron Age*:

	Cents Per Lb.
Copper, heavy and crucible.....	25.00
Copper, heavy and wire.....	24.00
Copper, light and bottoms.....	22.00
Brass, heavy	16.75
Brass, light	12.50
Heavy machine composition.....	21.50
No. 1 yellow rod brass turnings.....	17.50
No. 1 red brass or composition turnings.....	18.50
Lead, heavy	8.00
Lead, tea	7.50
Zinc	7.00

Educating the Dealer Up to Better Business

Gibson Company, Jobber, Operates a Commercial Development Bureau—Helps Solve Problems

INDIANAPOLIS, May 18—Believing that teaching the dealer to be a better business man will benefit the jobber, the Gibson Co., which distributes accessories nationally, has in operation what it terms a Commercial Development Bureau. This bureau has made a study of the retail business and gives advice to dealers, even assisting them in revamping their businesses or buildings. It is meeting with a hearty response from the trade.

Although the bureau has been in operation only a few months, it has received many applications for expert advice on various phases of the accessory and garage business. The results obtained in this brief time have convinced the company that the average dealer is eager to place his business upon a sound basis and that all he wants is to be shown how.

The plan adopted by the bureau is to supply to customers of the company, without charge, direct counsel on all subjects relating to the trade. If a man is just entering the business, the bureau not only will furnish him with detailed plans for erecting a building, arranging his stock and equipment, but will provide a plan which may be adopted for the efficient transaction of the business itself.

The plan reaches the small dealer who needs to be lifted out of the rut. His store-room is unattractive and all he needs is to follow out some definite plan of action for injecting real life into his enterprise. The work of the bureau is also designed to be of help to the successful merchant who wants to expand but who, before enlarging his field of activities, desires to have some plan that has been tried out by someone else with success.

The bureau is not dealing in generalities but is giving direct counsel that will produce results if followed out. Each case is taken up individually and an expert gives his time to working out a solution to each problem presented.

The bureau is endeavoring in each case where a garage is involved to devise a plan that will economize in time. This idea is applied in the location and operation of machinery. Each piece of equipment has its place. As an illustration: The bureau holds that the air compressor should be driven by an independent motor. It is used more frequently than other machinery and consequently with individual motive power it can be operated more economically than if attached to a central line shaft where other machinery would have to be operated each time the compressor is put into action.

The Gibson Co. is in its nineteenth year of operation. The real foundation for the inauguration of the bureau is the belief that the success of the dealer means the success of the Gibson Co.

In addition to the development of its own plant in Indianapolis the company has aided in the construction of a number of privately owned stores in various localities. The company is shortly to move into a new \$500,000 building. Along with the bureau activities, the company publishes each month *The Gibsonian*, a dealers' organ which is devoted to trade advancement.

Used Fords Bring High Prices

And in Los Angeles Dealers Will Buy Them Back for Almost the Original Price

NEW YORK, May 19—Reports from all parts of the country indicate that the market value of used Fords has gone up from \$25 to \$50. This is largely due to the fact that Ford cannot fill the new car orders and to the unsettled condition of the country.

In Davenport, Iowa, used Fords and other light cars are at a premium. Owners having heavy cars are buying light used cars for business and knocking around. People with a small amount of money to invest are buying the used light car. Business houses are purchasing them for use with truck attachments.

The Ford Dodge dealers are getting from \$25 to \$50 more for used Fords, but are also allowing the same proportional increase when taking them in. So the dealers there are making no extra profit on the increased value. The same condition exists in northern New York. There anything on rubber by the name of Ford is bringing from \$175 to \$200.

Jackson, Mich., dealers have noted no increase in the value of used light cars, but the conditions there are stabilized by a central used-car market that tends to keep the value constant.

Prices High in Los Angeles

LOS ANGELES, May 19—After extensive investigation the fact was established to-day, despite some attempts at denial, that authorized Ford dealers here and in the surrounding country are operating under a system that virtually means paying a premium to get Ford cars. The retail sales price of a Ford car here is \$415.70. The price to dealers is \$352. So incessant is the demand and so far behind orders are deliveries that one dealer told a Motor World correspondent he would pay the retail price to owners to get brand new cars.

The practice has passed even beyond that stage. Dealers are combing the roads and watching registration lists for a possible purchase. An owner may operate his car for two months and then sell it back to the dealer from whom he bought it for \$400.

One dealer here said to-day he had heard, and he had reasons to believe it true, that "a couple of the boys have paid \$425 for cars that have been out 90 days." He said he himself would buy all the new cars he could get at \$400. He said he was out all day yesterday looking for cars and could only get two. The local Ford assembly plant is turning out 45 cars daily. There are 20 authorized agents within the city and close environs. Retail sales are being made contingent upon 90 days' delivery.

Makers of trucks using Ford chassis are behind in orders because they cannot get enough Fords. The situation is such

that ownership of a new Ford is a distinction of the desirable kind. At the assembly plant it was said there was no knowledge of dealers paying premiums for cars. It was admitted there might be some individual transactions.

Ford dealers were notified to-day to write in every contract ordering a car that the price would be that prevailing on date of delivery, and if cars are not wanted at that time the deposit would be returned. More than 2000 Fords were sold in California in April.

Behind Orders in Denver

DENVER, May 19—Ford dealers in Denver are from a few days to two weeks behind in their orders, but there is no acceptance of premiums for hurrying deliveries. All customers are required to await their turn, and all cars are sold at the established price. The same rule holds true throughout the Rocky Mountain territory, declares General Manager Charles Hendy, Jr., of the Denver assembling plant. Further, he

says, the dealers throughout the territory are supplied cars according to their respective contracts for the year, and thus all customers and all dealers also are given the same chance.

Of course, dealers contracting for larger number of cars are often able to make more prompt deliveries, and thus customers benefit from the foresight or courage or good luck of a dealer who adds to his sales responsibility by placing a big order for the year and having more cars to sell.

The O'Meara-Green Motor Co. and the United Motor Sales Co., two prominent Ford dealers, one located near the center of the city and the other far out toward the assembling plant, report orders running about ten days or two weeks ahead of deliveries. The Kempter Motor Co. claims it can fill orders for regular models in less than a week. None of them regard the supply situation at all serious or surprising, and all unite in holding that the war is not causing any marked check in sales.

Manager Hendy expects the sales in this territory for the present August-to-August year to total 22,000, and is estimating the next year's business to reach the 40,000 mark. He is now preparing estimates for next year's requirements to operate the local plant, which is now turning out 85 cars daily.

The territory supplied by the Denver branch comprises Colorado, about two-thirds of Wyoming and New Mexico and a few counties in western Nebraska.

If one dealer is considerably undersold and doesn't want cars, his surplus allotment may be divided among dealers far oversold. But when it comes to speeding up deliveries by the force of any sort of premium, Manager Hendy says, "It can't possibly be done in this territory."

Higher Prices Hit on Coast

LOS ANGELES, May 19—Motor car dealers and distributors here are making no attempt to disguise the fact that business has slumped. The reduction in the sale of cars retailing for more than \$1,000 is especially noticeable. Registrations show that cars priced at \$1,700 or above are now selling at the average rate of about six a day, while six weeks ago the number was at least twice that.

Several dealers who were asked how they account for conditions said there seems no tangible reason. "The war" was the usual answer. The wave of frenzied economy that apparently has swept the country is given by some as a reason. The prospect of sharing in the millions of dollars to be spent in this country as the result of foreign loans does not seem to have influenced the motor car buying public.

It is declared by some dealers that the mental condition of the public is responsible. They cite the fact that California producers have received higher prices for their products this year than ever and an unequalled quantity has been sold. Clearing house reports showed that last week clearings were greater than for any previous week in the history of the city.

Motor Securities

	May 19, 1917	
	Bid	Asked
*Ajax Rubber Co.	68	72
*J. I. Case T. M. Co. pfd.	84	86
Chalmers Motor Co. com.	14	30
*Chandler Motor Car Co.	85	87
Chevrolet Motor Co.	95	105
Fisher Body Corp. com.	34	38
Fisher Body Corp. pfd.	89	91
Fisk Rubber Co. com.	70	75
Fisk Rubber Co. 1st pfd.	103	106
Fisk Rubber Co. 2nd pfd.	92	95
Firestone Tire & Rubber Co. com.	124 1/2	127
Firestone Tire & Rubber Co. pfd.	106 1/2	108
*General Motors Co. com.	102 1/2	102 3/4
*General Motors Co. pfd.	87 1/2	88
*B. F. Goodrich Co. com.	50 1/2	50 3/4
*B. F. Goodrich Co. pfd.	106 1/2	108 1/2
Goodyear Tire & Rubber Co. com.	194	198
Goodyear Tire & Rubber Co. pfd.	106 1/2	108
Grant Motor Car Corp.	3	5
Hupp Motor Car Corp. com.	3	4
Hupp Motor Car Corp. pfd.	74	80
International Motor Co. com.	7	10
International Motor Co. 1st pfd.	35	50
International Motor Co. 2nd pfd.	10	20
*Kelly-Springfield Tire Co. com.	50	53
*Kelly-Springfield Tire Co. 1st pfd.	87	94
*Lee Rubber & Tire Corp.	18	18 1/2
*Maxwell Motor Co., Inc., com.	48 1/2	49
*Maxwell Motor Co., Inc., 1st pfd.	63 1/2	67 1/2
*Maxwell Motor Co., Inc., 2nd pfd.	30	32
Miller Rubber Co. com.	185	195
Miller Rubber Co. pfd.	104	106
Packard Motor Car Co. com.	151	151
Packard Motor Car Co. pfd.	99 1/2	99 1/2
Palge-Detroit Motor Car Co.	29	30
Peerless Truck & Motor Corp.	10	13
Portage Rubber Co. com.	136	143
Regal Motor Car Co. pfd.	34	34
*Reo Motor Car Co.	28 1/2	29 1/2
*Saxon Motor Car Corp.	37	38 1/2
Springfield Body Corp. com.	52	57
Springfield Body Corp. pfd.	110	117
Standard Motor Construction Co.	13 1/2	14 1/2
Standard Parts Co.	88	88
*Stewart-Warner Speed. Corp.	72	74
*Studebaker Corp. com.	80	80 1/2
*Studebaker Corp. pfd.	100	105
Swinehart Tire & Rubber Co.	64	67
United Motors Corp.	28 1/2	28 3/4
*U. S. Rubber Co. com.	56 1/2	57
*U. S. Rubber Co. pfd.	105 1/2	106 1/2
*White Motor Co.	44 1/2	44 1/2
*Willis-Overland Co. com.	25	25 1/2
*Willis-Overland Co. pfd.	92 1/2	93

*At close, May 19, 1917. Listed New York Stock Exchange.
†Par value \$10.

MOTOR WORLD

Used Car Price Record

Revised each week from reports furnished by Motor World Territorial Representatives

A Summary of Used Car Sales Conditions

Sales have been slightly better during the week gone by, though conditions are still far from normal. The weather has been better and this has tended to speed up sales. However, some apprehension regarding the final action of the government has had a depressing effect. It is hoped that when the various tax measures are completed sales will pick up to their normal amount.

Milwaukee, May 19—Sales of used cars in Milwaukee during the past week have been somewhat lesser in volume than during the preceding week. The reason is given that used car stocks still are abnormally low, due to the drain caused by the Milwaukee Automobile Dealers' used car exposition, and considering the number of cars offered for sale, transactions are maintaining past averages well. New car business is well maintained, and a feature of this class of trade is the large number of sales made without trades or exchanges. This naturally has a tendency to restrict used car sales for the obvious reason that not so many are thrown upon the market.

Philadelphia, May 19—Several dealers report business in their used car departments improved because of better weather, but few if any say that conditions are back to normal. Owing to the uncertainty in the general situation buyers are hesitating. This hesitation was attributed by a prominent dealer here as due 75 per cent to the war and 25 per cent to the weather.

Albany, May 19—Another week of "late in the fall" weather has held back many who would otherwise have purchased cars. Used car sales during the past week were better than a week ago, but dealers say they can't expect to do much until the weather settles down.

Louisville, May 19—Used car sales showed a slight increase this week, owing to fair and warmer weather which has prevailed for several days. Ford dealers say they can't get enough cars and are offering to purchase used Fords from owners.

Hartford, May 19—Decided sluggishness has marked the local used car market during the past week and in some quarters no sales have been made. However, dealers are not upset over the situation. As in the past the weather is blamed. The sale of new cars has been affected much the same as used cars. Betterment is anticipated during the coming week.

Savannah, May 19—Business conditions remain unchanged. Few cars, either new or used, were sold during the past week and dealers are marking time looking to the outcome of the war scare that has settled down over prospects. The proposed 5 per cent tax

has, according to some dealers, caused fear and apprehension.

Fargo, N. D., May 19—Unusually fine weather having come to the rescue of the farmers makes a good crop now a very near possibility, although it is doubtful if a normal acreage will be sown. Business, which has been very light for 2 weeks is now picking up, an increasing number of sales in light cars having been reported. Evidently anticipating a raise in the tire market dealers report a very heavy demand for tires the past week. Other accessories selling very light.

Omaha, May 19—With clearing weather conditions, buying of used cars picked up somewhat during the past week, although several dealers still report no sales. The call was largely for light cars, and was not sufficient to move old stock on hand, although this stock is not heavy. The effect of war and crop conditions is still slightly in evidence. Roads are in fair shape again after the heavy rains, and dealers up state are taking some new cars, but not as many as distributors think the season should justify. Local buying of new cars is also somewhat below par.

Denver, May 19—Used car sales here during the last week dropped considerably below the average. Another spell of bad weather is the cause given by the majority of the dealers, with only one blaming the slump partly to additional war scare. Some say they had hardly any used cars in really fit shape to sell, and one reported selling new cars to customers who had intended to buy used ones.

Des Moines, May 19—Sale reports here for the past week were unusually small. The Des Moines Buick Co. reports the sale of a 1911 6-60 Thomas Flier which cost when new \$6,500, for \$100 cash.

Seattle, May 19—Sales of used cars during the past three weeks have decreased materially. Dealers, in practically every instance, state prevailing conditions and the feeling of uncertainty is the cause of the slump. The conscription bill, mounting cost of living and other factors of like kin are causing prospects to defer purchasing. Dealers in low price cars, particularly, report this to be the case.

Indianapolis, May 19—Business in used cars picked up a little during the last week as a result of improved weather conditions. Indianapolis has had its first week of con-

tinuous fair weather since the first of the year, and the public responded more readily. There is no denying the fact that unsettled business conditions growing out of the declaration of war are cutting down sales, but strenuous efforts are being made on all sides to restore public confidence. Industries are unusually busy, high wages are being paid, and workmen are in demand. There seems to be no reason why business should not soon resume a normal status.

St. Louis, May 19—Used car dealers report excellent response to their efforts this week, the demand running strongly to light, cheap cars. However, as not many of these cars are in the market inquirers have been turned to heavier cars. Some unusual efforts have been put forth within the last two weeks and an unusual number of heavy car sales are reported.

Kansas City, May 19—Trade in used cars has been rather slow in Kansas City the past week. The net result is below the average for the season, the bright weather and advancing season not yet having caused business to open briskly. Dealers generally, however, are confident that business will reach its normal level, and go far beyond, in the next few weeks.

San Francisco, May 19—There was a marked shrinkage in the demand for used cars during the past week, dealers generally reporting but little interest no matter how attractive the bargains offered. The dullness was attributed to the uncertainty of the tax bill now pending in Congress.

Columbus, O., May 19—The used car market during the past week has been quiet, although a few sales were reported. Prices have held up well and outside of a few isolated instances quotations have been up to the usual figures in the same class of cars. Most of the dealers have moved their used cars as rapidly as they are coming in, and there is no glut to the market.

Detroit, May 19—The used car business has continued quiet during the past week, though the demand for light cars has slightly increased. The scarcity of Fords has slightly boosted the price for other light used cars, and a still greater increase is expected. Closed cars, however, are moving very slowly. Several dealers have lowered the prices of closed cars from \$50 to \$200, in order to close sales.

BEGINNING with next week Motor World will present a new plan for finding the values of used cars. It will aid you in finding the value of ANY car and will NOT consist of the printing of prices. You will not have to know what some other man gets for a car before you can know its value. You can figure it out for yourself.

The plan that will be proposed is presented after a thorough and personal investigation of the used car business in many cities. This investigation was begun at the time Motor World began its publication of resale prices two months ago and has showed us that resale figures are NOT of greatest value, for the reason that

one time a car may sell for \$700 and another time for only \$400.

The new plan that Motor World will present is safer by far, and any one can use it. It consists of the presentation of the fundamental LAWS OF USED CARS, which govern all depreciation. With these laws you can determine YOUR OWN PRICES. These laws will tell you why one car depreciates more than another.

You should watch for this new plan and make yourself thoroughly familiar with it. Study it. If you don't study it you can't get full value from it. And each week thereafter Motor World will conduct a department pertaining to the used car business.

Albany

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
B24	1914	....	....	**400
CADILLAC—				
53	1917	....	2000	....
CHALMERS—				
30	1911	250	....	....
CHEVROLET—				
H2	1915	....	....	**400
DODGE—				
1916		*425	....	....
HAYNES—				
35	1916	....	**900	....
HUDSON—				
6-40	1915	....	800	....
HUPMOBILE—				
N2	1916	600	....	....
K	1915	650	....	....
MICHIGAN—				
1912		150	....	....
OLDSMOBILE—				
43	1916	*750	....	....
PAIGE—				
Frld	1915	....	675	....
REO—				
R	1915	*425	....	....
R	1914	*350	....	....
STUDEBAKER—				
17-6	1916	....	600	....

Austin

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
KISSEL—				
1915		450	....	....
OVERLAND—				
1912		200	....	....

Baltimore

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
B25	1914	450	....	....
CHANDLER—				
17	....	....	....	†1100
CHEVROLET—				
490	1916	350	....	....
HUDSON—				
6-54	1914	....	450	....
MAXWELL—				
25	1915	325	....	....
OVERLAND—				
83	1916	465	....	....
80	1915	350	....	....
79	1915	350	....	....
STUDEBAKER—				
18-4	1917	....	875	....
17-6	1916	....	750	....
16-4	1916	....	500	....
†Four-passenger roadster.				

Bridgeport

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
DODGE—				
1916		600	....	....
LOCOMOBILE—				
1912		**650	....	....
REO—				
R	1914	....	375	....
STUDEBAKER—				
16-6	1916	....	†**700	....
16-4	1916	....	**600	....
†Three-passenger roadster.				

Columbus

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
1913	200	....
CADILLAC—				
1912		375	....	....

COLUMBUS—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CHALMERS—				
MS	1914	650	....	....
CHEVROLET—				
490	1915	400	....	....
H4	1916	**475	....	....
DODGE—				
1916		**600	....	....
1915		575	....	....
MAXWELL—				
1915		*390	....	....
OAKLAND—				
32	1916	....	550	....
STUDEBAKER—				
17-6	1916	....	800	....
15-4	1915	450	....	....
35	1913	....	**700	....
VELIE—				
9	1915	325	....	....

Dallas

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D44	1916	....	500	....
CADILLAC—				
1913		**650	....	....
CHALMERS—				
6-30	1916	*600	....	....
COLE—				
1914		**350	....	....
FRANKLIN—				
8	1916	1650	....	....
7	1915	**1000	....	....
5	1914	*700	....	....
3	1913	*700	....	....
HUPMOBILE—				
K	1916	650	....	....
32	1914	*525	....	....
MAXWELL—				
25	1916	**300	....	....
OAKLAND—				
32	1916	750	....	....
OLDSMOBILE—				
43	1916	**1000	....	....
REO—				
M	1916	....	**825	....
R	1916	**725	....	....
R	1915	**525	....	....
R	1914	*400	....	....
STUDEBAKER—				
16-6	1916	**450	....	....

Denver

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
DODGE—				
1915		550	....	....
LOZIER—				
1914		*325	....	....
MAXWELL—				
25	1916	....	*450	....
OVERLAND—				
75	1916	*500	....	....
81	1915	*381	....	....
PACKARD—				
48	1914	....	*1450	....
STUDEBAKER—				
17-6	1916	....	*850	....
16-4	1915	500	....	....

Des Moines

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45	1916	725	....	....
D44	1916	600	....	....
CADILLAC—				
53	1916	....	1650	....
CHEVROLET—				
490	1916	*525	....	....
H4	1915	*537	....	....
H2	1913	....	175	....

DES MOINES—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
DODGE—				
1915		*525	....	....
JEFFERY—				
1916		....	600	....
MAXWELL—				
25	1916	340	....	....
OAKLAND—				
1913		165	....	....
OLDSMOBILE—				
1915		*400	....	....
OVERLAND—				
75	1916	....	*390	....
81	1916	....	*335	....
REO—				
R	1914	425	....	....
STUDEBAKER—				
16-4	1916	....	675	....

Detroit

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45	1916	**550	....	....
CADILLAC—				
1914		....	425	....
CHALMERS—				
MS	1916	....	500	....
CHEVROLET—				
490	1916	375	....	....
DODGE—				
1917		**650	....	....
1916		*525	....	....
1915		*425	....	....
DORT—				
1916		**350	....	....
GRANT—				
V-P	1916	350	....	....
HAYNES—				
1916		....	*1000	....
HUDSON—				
6-40	1916	....	734	....
SS	1916	....	**1175	....
6-40	1914	....	**500	....
HUPMOBILE—				
N	1916	**650	....	....
32	1914	300	....	....
KING—				
1914		....	350	....
MAXWELL—				
25	1917	400	....	....
25	1916	400	....	....
25	1915	250	....	....
MITCHELL—				
6-16	1916	....	600	....
1915		....	450	....
1914		....	200	....
OAKLAND—				
32	1916	**525	....	....
OLDSMOBILE—				
43	1915	800	....	....
OVERLAND—				
85	1917	....	*950	....
83	1916	400	....	....
75	1916	*450	....	....
81	1915	*400	....	....
80	1915	*450	....	....
PAIGE—				
6-38	1916	....	*800	....
36	1915	325	....	....
REO—				
M	1916	....	**725	....
R	1916	**550	....	....
M	1915	**475	....	....
R	1915	**400	....	....
ROSS—				
1916		....	950	....
SAXON—				
S2	1916	500	....	....
14	1916	....	250	....
S	1915	450	....	....
14	1915	....	175	....
STUDEBAKER—				
17-6	1917	*650	....	....
17-4	1916	....	†500	....
†Three-passenger roadster.				

Duluth

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
C24	1915	600	....	....
CHEVROLET—				
H4	1916	600	....	....
FRANKLIN—				
8	1916	1500	....	....
INTER-STATE—				
4	1913	....	350	....
OVERLAND—				
83	1916	600	....	....
STUDEBAKER—				
15-6	1915	....	750	....
15-4	1915	550	....	....

Fargo

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
DODGE—				
1915		415	....	....
MAXWELL—				
25	1915	400	....	....
OVERLAND—				
75	1916	*485	....	....

Flint, Mich.

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45	1917	800	....	....
D45	1916	500	....	....
C54	1915	....	525	....
CADILLAC—				
....	1913	....	500	....
CHALMERS—				
MS	1916	575	....	....
6-40	1916	....	800	....
CHEVROLET—				
490	1916	375	....	....
DODGE—				
....	1917	600	....	....
....	1916	500	....	....
....	1915	425	....	....
DORT—				
....	1916	375	....	....
HUDSON—				
SS	1916	....	1100	....
6-40	1916	....	750	....
6-40	1915	....	650	....
MAXWELL—				
25	1916	300	....	....
....	1915	250	....	....
OAKLAND—				
37	1915	400	....	....
OVERLAND—				
79	1914	200	....	....
PATERSON—				
....	1916	700	....	....
REO—				
M	1916	....	700	....
R	1916	500	....	....
M	1915	....	500	....
R	1915	....	400	....
....	1914	300	....	....
STUDEBAKER—				
17-6	1916	....	500	....
15-6	1915	....	400	....

HARTFORD—Continued

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
MAXWELL—				
25 1917	350	....	....	....
25 1916	....	....	....	350
25 1915	200	....	....	....
OVERLAND—				
75 1916	450	....	....	....
80 1915	450	....	....	....
REO—				
R 1914	375	....	....	....
STUDEBAKER—				
15-4 1915	500	....	....	....
4 1913	450	....	....	....
STUTZ—				
1912	350	....	....	....
†Demonstrator.				

Indianapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D44 1916	*650	....	....	....
CADILLAC—				
51 1915	....	....	....	*1000
.... 1914	....	....	....	*750
COLE—				
.... 1917	....	1350	....	....
4-40 1915	....	*495	....	....
6-60 1914	....	*650	....	....
4-40 1913	*300	....	....	....
INTER-STATE—				
.... 1915	*600	....	....	....
MAXWELL—				
.... 1915	*350	....	....	....
.... 1914	....	....	....	*300
OVERLAND—				
86 1916	775	....	....	....
75 1916	495	....	....	....
83 1916	450	....	....	....
STUDEBAKER—				
15-4 1915	350	....	....	....
STUTZ—				
.... 1917	900	....	....	....

Kansas City

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BRISCOE—				
.... 1917	*650	....	....	....
.... 1916	500	....	....	....
.... 1915	....	....	....	375
BUICK—				
D45 1916	....	775	....	....
B36 1916	....	....	....	*550
CADILLAC—				
.... 1913	500	....	....	....
CHEVROLET—				
490 1916	500	....	....	....
H2 1915	785	....	....	....
DODGE—				
.... 1916	575	....	....	....
.... 1915	550	....	....	....
KING—				
D 1916	....	\$1050	....	....
MAXWELL—				
.... 1916	375	....	....	....
MITCHELL—				
6-16 1916	725	....	....	....
.... 1914	125	....	....	....
OVERLAND—				
85 1916	450	....	....	....
83 1916	*500	....	....	*425
81 1915	....	....	....	*475
79 1914	*375	....	....	....
PAIGE—				
6-46 1916	*950	....	....	....
REO—				
M 1915	625	....	....	....
R 1912	225	....	....	....
.... 1911	120	....	....	....
STUDEBAKER—				
17-6 1916	....	....	....	†700
16-4 1916	....	....	....	575
14-6 1914	375	....	....	....
WILLYS-KNIGHT—				
86 1916	850	....	....	....
†Three-passenger roadster.				

Louisville

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
CADILLAC—				
51 1915	....	*1100	....	....
CASE—				
.... 1914	....	105	....	....
DODGE—				
.... 1916	625	....	....	....
HUDSON—				
SS 1916	....	1350	....	....
HUPMOBILE—				
32 1914	475	....	....	....
MAXWELL—				
.... 1916	475	....	....	....
OVERLAND—				
83 1916	450	....	....	....
80 1915	450	....	....	....
69 1913	300	....	....	....
SAXON—				
A 1913	....	....	....	110

Milwaukee

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
ABBOTT-DETROIT—				
.... 1913	....	375	....	....
BUICK—				
3-54 1917	**750	....	....	....
DODGE—				
.... 1917	750	....	....	....
.... 1916	....	....	....	**600
HUDSON—				
SS 1916	....	1250	....	....
MAXWELL—				
.... 1917	580	....	....	....
.... 1916	....	....	....	525

Minneapolis

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
.... 1914	....	....	....	300
CHALMERS—				
6-30 1916	....	750	....	....
MS 1915	....	**700	....	....
30 1914	....	....	....	350
CHEVROLET—				
H2 1914	300	....	....	....
DODGE—				
.... 1917	**750	....	....	....
.... 1916	*600	....	....	....
.... 1915	*550	....	....	*500
FRANKLIN—				
G 1907	150	....	....	....
GRANT—				
V 1916	425	....	....	....
HUDSON—				
33 1912	250	....	....	....
HUPMOBILE—				
K 1915	**600	....	....	....
20 1911	....	....	....	100
JEFFERY—				
.... 1916	600	....	....	....
MAXWELL—				
.... 1916	450	....	....	....
.... 1915	300	....	....	....
MITCHELL—				
.... 1916	....	....	....	†**800
OLDSMOBILE—				
44 1916	850	....	....	....
OVERLAND—				
.... 1914	250	....	....	....
REO—				
R 1916	822	....	....	....
R 1915	600	....	....	....
.... 1912	200	....	....	....
.... 1911	125	....	....	....
SAXON—				
S2 1916	....	....	....	650
S 1915	500	....	....	....
STUDEBAKER—				
15-4 1915	....	....	....	375
35 1913	....	....	....	350
†Three-passenger roadster.				

New York

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
B24 1914	....	....	....	230
CADILLAC—				
.... 1915	....	....	....	925
CHEVROLET—				
H 1916	425	....	....	....
490 1915	400	....	....	....
DODGE—				
.... 1916	567	....	....	....
HUDSON—				
SS 1916	....	*1250	....	....
6-40 1916	....	*800	....	....
6-40 1915	....	*550	....	....
HUPMOBILE—				
N2 1916	....	*875	....	....
N1 1916	....	800	....	....
K 1915	*537	....	....	....
32 1914	*450	....	....	....
32 1913	....	....	....	*300
MAXWELL—				
.... 1915	350	....	....	....
MOON—				
.... 1916	....	450	....	....
NATIONAL—				
AB 1915	....	1300	....	....
OAKLAND—				
38 1916	....	....	....	750
48 1915	550	....	....	....
OVERLAND—				
83 1916	400	....	....	....
81 1915	....	....	....	275
80 1915	325	....	....	....
PAIGE—				
Frfd 1916	....	*800	....	....
Frfd 1915	....	*750	....	....
PULLMAN—				
.... 1916	....	....	....	†350
SAXON—				
S2T 1916	500	....	....	....
14 1916	....	....	....	225
SCRIPPS-BOOTH—				
.... 1915	420	....	....	....
STUDEBAKER—				
17-6 1916	....	....	....	750
17-4 1916	....	....	....	600
15-4 1915	....	....	....	425
†Four-passenger roadster.				

Omaha

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
D45 1916	750	....	....	....
CHALMERS—				
6-30 1916	....	700	....	....
26B 1915	....	425	....	....
24 1914	....	450	....	....
CROW-ELKHART—				
C35 1917	700	....	....	....
DODGE—				
.... 1917	....	....	....	500
.... 1916	....	....	....	500
MAXWELL—				
25 1916	**400	....	....	....
25 1915	300	....	....	....
STUDEBAKER—				
15-4 1915	....	400	....	375

Peoria

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
BUICK—				
B36 1916	**450	....	....	....
CHEVROLET—				
H4 1916	*500	....	....	....
HUPMOBILE—				
N 1916	*850	....	....	....
K 1915	*750	....	....	....
HA 1914	*525	....	....	....
OVERLAND—				
83 1916	350	....	....	....
80 1915	*300	....	....	....
79 1914	175	....	....	....
SAXON—				
S2 1916	**425	....	....	....
14 1915	....	....	....	250

Philadelphia

Car & Model	Year	5-pas t'ring	7-pas t'ring	2-pas rdstr
APPERSON—				
.... 1916	....	....	....	†950
BRISCOE—				
82 1916	400	....	....	....
.... 1915	325	....	....	....
BUICK—				
D45 1916	800	....	....	....
C25 1915	350	....	....	....
HAYNES—				
37 1917	....	....	....	1200
HUPMOBILE—				
32 1914	400	....	....	....
KING—				
D 1915	700	....	....	....
MITCHELL—				
.... 1917	....	....	....	900
OAKLAND—				
32 1916	650	....	....	....
35 1913	250	....	....	....
OLDSMOBILE—				
44 1916	*900	....	....	....
43 1916	*750	....	....	....
42 1915	400	....	....	....
OVERLAND—				
83 1916	437	....	....	400
75 1916	425	....	....	....
80 1915	375	....	....	....
PAIGE—				
Fltwd 1916	800	....	....	....
Frfd 1916	....	....	....	850
PULLMAN—				
.... 1915	425	....	....	....
REO—				
M 1916	900	....	....	....
R 1916	650	....	....	....
†Four-passenger roadster.				

Pittsburgh

Car & Model	Year	5-pass t'ring	7-pass t'ring	2-pass rdstr
BUICK—				
D45	1916	....	850	....
CADILLAC—				
51	1916	1200	....	....
....	1913	....	400	....
CHALMERS—				
6-30	1916	....	....	750
26B	1915	....	650	....
DODGE—				
....	1916	565	....	....
HUDSON—				
SS	1916	....	1100	....
6-40	1916	....	800	....
MARION—				
....	1914	**450	....	....
MAXWELL—				
....	1916	*425	....	....
....	1915	350	....	....
NATIONAL—				
12	1917	....	1550	....
OLDSMOBILE—				
43	1916	600	....	....
OVERLAND—				
83	1916	....	....	450
86	1916	....	800	....
85B	1916	....	....	450
PAIGE—				
4-36	1913	250	....	....
PULLMAN—				
4-24	1916	450	....	....

Specifications of the Leading Cars

**Revisions Are
Made in Table
Every Week**

[illegible]

Higrade Trucks Soon to Manufacture

GRAND RAPIDS, MICH., May 19—The Higrade Motors Co., which was organized early this year, will soon commence production of its Higrade trucks. The company has purchased a tract of land in this city and will erect a factory to be completed early in September, but arrangements are being made for putting the first trucks on the market about July 20. The first thousand will be made in the experimental shops at Harbor Springs, Mich. The company is manufacturing a ½-ton truck. The chassis weighs 2310 lbs., and with an express body and full top the weight is approximately 2800 lbs. The equipment includes standard 32 x 4 tires. The wheelbase is 115 in., with 102 x 48 floor space clear of the driver's seat. The wagon bed floor is 30 in. from the ground. The engine is a Wisconsin 3¼ x 5 four-cylinder truck motor equipped with a Bosch high tension, ignition, lighting and starting outfit. Sheldon worm drive axles and spring suspension, Spicer direct drive, Borg and Beck disk clutch, Lavine semi-irreversible worm steering gear, Fedder cellular radiator, Parish frame members constitute the most important units. The price, which has not yet been settled upon, will be under \$1,600.

More Canadian Land for Ford

DETROIT, May 19—Two real estate transfers involving \$58,000 of property near Windsor, Ont., were made last

week when Gordon McGregor, managing director, and Wallace Campbell, secretary-treasurer of the Canadian Ford Motor Co., purchased the land. No announcement is made at this time, but it is thought that this property may be used for factory purposes for the Canadian Ford company.

Books

Reading books is one of man's greatest means of progress. The books below have been received and are here reviewed by Motor World.

The Psychology of Salesmanship, by William Walker Atkinson; The Elizabeth Town Co., Holyoke, Mass. The how of certain selling steps is well taken up in this book. Sections describe methods of standing, methods of walking and, above all, methods of working the mind of the salesman and the prospect in the right way. The book is intensely interesting and is easy reading.

Salesmanship, by Simon Robert Hoover; the Macmillan Co., New York. Every salesman or sales manager can get a great deal out of this book. One picture, taken from life, shows how to hand the pencil to a man when it is time to get him on the dotted line. Practical illustrations are used throughout. Practical, easily understood advice is given. The book is easy reading.

Gibney Tire Sees Trouble

PHILADELPHIA, May 19—Henry C. Thompson, Jr., was appointed by the United States District Court receiver for the Gibney Tire & Rubber Co., Conshohocken, Pa., against which proceedings in bankruptcy were recently brought. Bond was fixed at \$50,000. The assets of the company are \$372,697 against liabilities of \$719,361. It is claimed by stockholders that the live assets are sufficient to cover the liabilities.

Packard Airplane Engine Near Completion

DETROIT, May 19—A variety of stories regarding the airplane activities of the Packard Motor Car Co. have been circulated in various sources, the latest being particularly on a supposed high-speed plane that the Packard company was said to intend to build. The Packard Motor Car Co. has given up the idea of making planes or even flights, as it is going to turn its entire attention in this department to the manufacture of airplane engines. The Government officials will do the flying experimental work themselves, probably at the aviation school at Miami Beach, Florida. The Packard airplane engine, which has been considerably revised, has been under exhaustive tests for some weeks, and these are just about near completion, at which time the engine will be ready to be sent through on a production scale.

Coming—THE SHOW CALENDAR—Events

Shows

Montreal, Can.....	Used Car Show, Coliseum.....	June 20-27
	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Spokane, Wash.....	Interstate Fair.....	Sept. 2-9
Milwaukee, Wis.....	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Peoria, Ill.	Peoria Exposition and International Farm Congress and Soils Exposition, tractor display and demonstrations.	Sept. 18-29
Dallas, Tex.....	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C....	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Springfield, Ill.	Convention Garage Owners' Assn. of Ill., Hotel Leland.	May 22-23
Cincinnati, O.	250-mile Race.....	May 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.....	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va.....	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.....	Championship.....	June 9
Detroit	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.....	Race.....	June 23
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.....	Championship.....	July 4
Tacoma, Wash.....	Championship.....	July 4
Visalia, Cal.....	Road Race.....	July 4

Spokane.....	Track Race, R. A. Hiller, Mgr.....	July 4
Benton Harbor, Mich..	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.....	Hill Climb.....	July 14
Des Moines, Ia.....	Championship.....	July 14
Missoula, Mont.....	Track Race, R. A. Hiller, Mgr.....	July 15
Buffalo, N. Y.....	Inter-city Reliability.....	July 17-19
Inter-city Reliability...	American Auto. Assn.....	July 17-19
Anaconda, Mont.....	Track Race, R. A. Hiller, Mgr.....	July 22
Great Falls, Mont.....	Track Race, R. A. Hiller, Mgr.....	July 29
Billings, Mont.....	Track Race, R. A. Hiller, Mgr.....	Aug. 5
Fremont, Neb.....	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J.....	Track Race.....	Aug. 17
Elgin, Ill.....	Road Race.....	Aug. 18
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.....	Championship.....	Sept. 3
Red Bank, N. J.....	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.....	Hill Climb.....	Sept. 8
Providence, R. I.....	Championship.....	Sept. 16
Allentown, Pa.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
Uniontown, Pa.....	Speedway Races.....	Sept. 30
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.....	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.....	Race.....	Oct. 13
Richmond, Va.....	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 9

New York, May 30, 1917

Ten cents a copy
Two dollars a year



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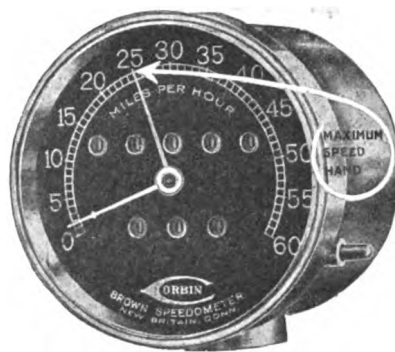
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You Have the Facts On the CORBIN-BROWN SPEEDOMETER

The plain, unvarnished facts—facts that there is no disputing. Nothing can alter them. Heat, cold, altitude, electrical influences—nothing can affect the accuracy of the Corbin-Brown Speedometer. This instrument affords the maximum of comfort and service. You can trust it. You can be sure of it. You can rely not only on its accuracy but also on its durability and mechanical toughness. And here is the latest and crowning feature of the Corbin-Brown:

The Maximum Speed Hand

is an exclusive feature devised and perfected for the Corbin-Brown. This extra hand is red and, as the name implies, registers the greatest speed at which the car is driven. It can then be reset at zero at the will of the driver. It is clear to see what a great convenience this device is, as it obviates that necessity of watching the speedometer on fast stretches and enables the driver to keep his eyes on the road. It can be purchased with your new Corbin-Brown or equipped at the slightly increased cost of \$2.50.

**Ask your dealer about this today
 Carry the Corbin-Brown this summer**

*There is also a Corbin-Brown
 especially designed for Ford
 service. Catalog upon request*

The Corbin Screw Corporation
 THE AMERICAN HARDWARE CORPORATION, Successor
 NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
 Makers of Corbin Duplex Coaster Brakes for Bicycles

The Right Time All the Time



HARTFORD SELF WINDING ELECTRIC CLOCK

Price, \$15.00

Uses So Little Current That Your Gauge Never Flickers

EVERY man who runs a car knows that a clock with a spiral mainspring and complicated train of wheels can't be expected to run accurately under the jars, jolts and vibrations of driving over the average road.

But at last a clock has been evolved which eliminates delicate, uncertain mechanisms—an *accurate electric clock*—the Hartford Self Winding Electric Clock.

It is no longer necessary to pay at least \$20 or \$25 for a dash clock which you can *depend on*.

The Hartford Self Winding Electric Clock solves the problem of the *right time* at a *fair price*.

Ideal for the motorist—on the rush through the city to keep an appointment—speeding over a dark country road where there's no chance to pull out your watch—for the doctor to whom a few minutes may mean everything.

It winds itself by *electricity*, regularly, every minute—and this regularity still further insures *accuracy*.

It does away with all the *bother* of winding.

And this guarantee goes with it—We will replace or repair, free of charge, any HARTFORD SELF WINDING ELECTRIC CLOCK that proves defective within one year from the date of purchase, if returned to our factory with the seal unbroken.

Connect it with your storage battery or four No. 6 dry cells—it requires hardly any current and will run long after there is insufficient power to operate starter or lighting system.

The Hartford Self Winding Electric Clock is supplied in nickel or black finish with black or silver dial.

Ask your dealer about this most practical of motor car accessories or write direct to

DOTTS SPECIALTY COMPANY, Inc.
248 Circle Building, NEW YORK

When writing advertisers please mention Motor World—It identifies you

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, May 30, 1917

No. 9

How to Make Money on Used Cars

Motor World's Used Car Business Plan

A LENGTHY investigation of the used car situation has been made by MOTOR WORLD in several cities. Statistics have been gathered and analyzed, used car experts and non-experts have been interviewed, successful and non-successful businesses have been probed, numerous good and bad used car plans have been inspected, a great mass of data has been gathered, sifted and summarized, and MOTOR WORLD believes it has SOLVED THE USED CAR PROBLEM.

The solution involves some radical changes for many dealers. It means new business methods for some of the best dealers in America. It means that the used car is no longer a *problem* if the dealer will only make it a *business*. It has for too long been an evil-smelling, haphazard, hit-or-miss adventure. These facts stand forth:

1—The dealer must take the situation firmly in hand, and handle used cars in a businesslike way. That they must be handled cannot well be disputed.

2—He must make a profit selling cars. It is ridiculous for him to let the used car create losses which have to be charged against the new cars.

3—The used car must be taken out of the junk class and made respectable. There must be no more of the "gyp," fly-by-night, pig-in-a-poke atmosphere.

4—Every car taken in trade must be put into good usable condition or junked. "Fix 'em or junk 'em!" is the watchword henceforth.

5—Resale prices are not a reliable guide to the dealer. If it were possible to average each week or month a great mass of resales, a fairly true average could be found; but even then it wouldn't be a real guide. There would be high sales and low sales, and no car offered in trade would hit the mark. It would still be a question of judgment. Because of that flaw in the resale quotation method, MOTOR WORLD has this week discontinued its market prices, and presents a new and far better plan.

6—THE LAWS OF USED CARS have been worked out by MOTOR WORLD. They are the only safe foundation for figuring used car values. With these laws you can figure out values for yourself.

7—The dealer must never sell a car that is not in good usable condition, unless it is sold to the junkman or used car dealer.

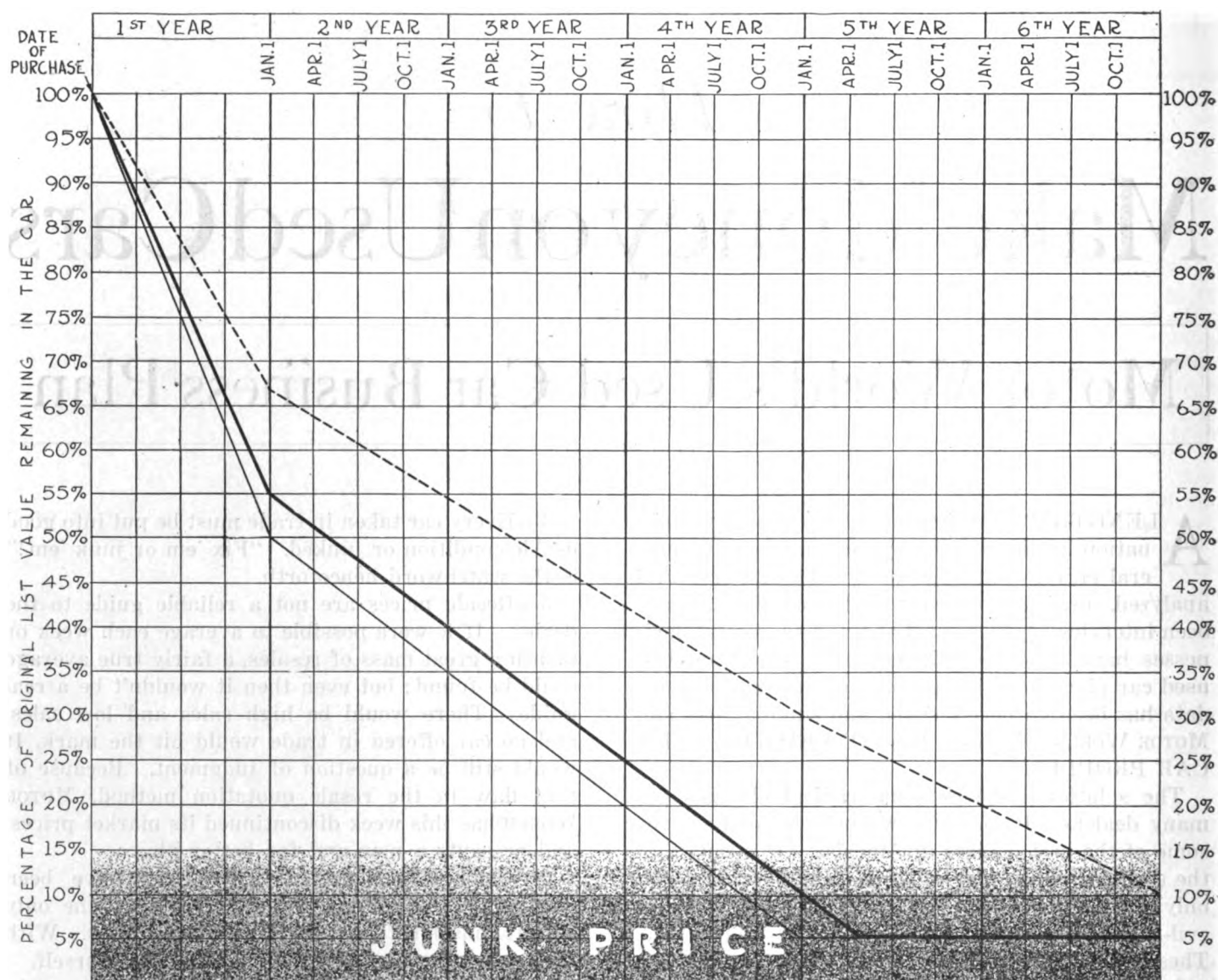
8—The dealer must develop business judgment. He must study the used car business and keep records. In preparing the curve in this Used Car

Business Plan the statistics in the National Used Car Market Report were extensively used. This report is published by the Chicago Automobile Trade Association.

Remember—The facts on this page are fundamental in solving the used-car problem. They are as important as the facts on the pages that follow. Get the Big Idea firmly in mind: You can't solve your own used car problem unless you take firm hold of it and make it a real business.

How to Tell the Value of Used Cars

Motor World Used Car Price Chart



YEARLY Divisions. The divisions across the chart from left to right represent years. Within the yearly divisions are divisions of 3 months each, with the dividing lines indicated by dates: Jan. 1, April 1, July 1 and Oct. 1.

Percentages. The figures up the right- and left-hand sides represent the percentage of the original value—or list price—that is now remaining in the car.

Curves. The curves—the lines that slant down across the chart—represent the decline in value of a car year by year.

Upper Curve. This is the depreciation in only a few of the very, very best of cars. This line will be SEL-

DOM used. Until you KNOW, be careful of it. **Black Curve.** This BLACK LINE should be used in the majority of standard makes of car. Never go above this BLACK LINE unless you are absolutely SURE you are justified. **STICK TO THE BLACK LINE.**

Lower Curve. The lower line should be used when there is doubt as to whether the percentage found on the BLACK LINE is safe. And if even this lower curve seems doubtful go still lower.

Junk Price. The shaded section at the bottom represents the junk price. This is what can be obtained for the car from the junkman or used car dealer.

How to Use the Chart

Year of Car Model

1912	1913	1914	1915	1916	1917
------	------	------	------	------	------

How to Find the Value of a Used Car

It Is a 1915 Car; List Price, \$1200

1—Turn to the chart above on this page. It is a 1915 car, so place your finger on 1915 and count "one." Count to the right until you hit 1917, which is the present calendar year. It will be thus: (1915) one, (1916) two, (1917) three. The car may be assumed as being in its third year.

2—Turn now to the chart on the opposite page. Your counting on the chart above has told you the car is in its third year; therefore find the section labeled "3d year." It is now about June 1. Therefore you find this date line in the 3d year. The nearest date to it is July 1, so we work near this line.

Run down this date line until it hits the BLACK LINE. Run your eye over to the left and see what percentage you have reached. It is very close to 35. This means that there is remaining in the car 35 per cent of the original list value.

3—Multiply \$1,200 by 35 (per cent). You get \$420, which is about what the car is worth in ordinary "as is" condition.

4—You must fix the car up and make it usable. You must put it in good condition. If you overhaul it it will be worth one-third to one-half more. Therefore, let us use 40 per cent and add \$168, which brings the figure up to \$588. This is what you may expect to get for the car if you put it in shape.

5—Ascertain what it will cost to put the car in shape. For this, use the Motor World Used Car Checking Sheet shown on page 8. Let us assume it is \$75. Deduct this from the \$588. It leaves \$513.

6—Deduct your cost of handling the car. This phase is described in detail on page 9. Let us assume it is \$40. This, taken from \$513, leaves \$473.

7—Figure to make a profit of 10 per cent on the car, which you are to sell, we found, for \$588. Ten per cent of \$588 is \$58. This from \$473 leaves \$415.

8—Allow 5 per cent for salesman's commission. This (5 x \$588) is \$29. Deduct the \$29 from \$415. This leaves \$386, which is your ALLOWANCE.

How It Figures Out

Original price of car.....	\$1,200
Remaining value as shown by curve on chart..... 35%	
35% of \$1,200	\$420
40% increase in value through overhaul.....	168

Price car should bring when fixed up and sold..... \$588

Deduct

Overhaul estimated at	\$75
Overhead	40
10% (of \$560) for profit.....	58
5% (of \$560) for salesman.....	29

Total deduction \$202 Make it \$202

Allowance \$386

Your Profit Is 10%

If you sell the car for..... \$588

You deduct these expenses:

a—Cost of car	\$386
b—Overhaul	75
c—Overhead	40
d—Salesman's commission	29
	— \$530

And find that you made a profit of..... \$58

Also you have made your full profit on your new car.

Go carefully through pages 5, 6, 7, 8 and 9, in this issue of MOTOR WORLD, in order that you may use this Used Car Plan in the RIGHT WAY. Used cars, instead of being a problem, should be a profit. They can be if you handle them RIGHT. Furthermore, they should not be an expense against the New Car Department. And in estimating overhaul costs you should not guess in the dark. All these points are covered on pages 5, 6, 7, 8 and 9.

MOTOR WORLD

Used Car Check Sheet

How to Use This Sheet

WHEN a car is brought to you for trading make NO estimates or allowance until you have checked it according to this sheet. Don't cite any figures to the prospect until you have checked the sheet, else you may find your way difficult if you find it necessary to revise these figures downward. Do these things:

1—Have a competent man check the car's condition according to this sheet.

2—Note what must be done to the car to put it in first-class condition.

3—Opposite each item set down the repair cost. Figure in the price of parts, new tires, etc., and labor at not less than 60 or 75 cents an hour, according to

your establishment. Keep high enough on this labor figure. Don't cheat yourself.

4—Total the work to be done and materials to be used and use this total as the overhaul figure. Once you have found it don't try to reduce it, for, if you have been accurate in checking, you cheat yourself if you try to cut this cost.

ENGINE	CARBURETER
No. of cycles..... Bore..... Stroke.....	Repairs..... Adjustment.....
Valves	Tank
Regrinding..... Reseating.....	Line
Timing gears	COOLING SYSTEM
Tight..... Adjustment..... New gears.....	Fan
Connecting-rod bearings	Water pump.....
Adjusting..... Rescraping..... Replacing.....	Radiator
Main bearings	CLUTCH
Adjusting..... Rescraping..... Replacing.....	Adjustment
Pistons and rings	Relining
Tight..... Loose..... Cure.....	TRANSMISSION
Oiling	Gears
Too much... Too little... Just right... Cause...	Bearings
Carbon deposit.....	Shafts
IGNITION SYSTEM	Shifting mechanism.....
Wiring	Driveshaft
Spark plugs.....	Universals
Coil	REAR AXLE
Magneto	Adjustment
Dry Cells.....	Gears
STARTING AND LIGHTING	Adjustment..... Replacement.....
New bulbs.....	Bearings
Lighting troubles.....	Adjustment..... Replacement.....
New brushes.....	Radius rods.....
Commutator rough.....	Torque member.....
Starter	FRONT AXLE
Weak..... Won't work..... New brushes.....	Alignment
Storage battery.....	STEERING GEAR
Low voltage... Loses charge... Cell shorted...	Adjustment..... Bearings..... Gears.....
Storage battery.....	Replacement..... Bearings..... Gears.....
O.K... Rep. required.. New battery required..	
SPRINGS	Horn
Clips	Tire holder
Hangers	Tool box.....
TIRES	Bumper
Front	Shock absorbers.....
Rear	Tools
Extra	Spotlight
BRAKES	Engine tire pump....
Service	Seat covers.....
Emergency	Mirror
WHEELS	Speedometer
Bearings	Shock absorber.....
Alignment	Bumper
SPEEDOMETER ...	Winter top.....
Head	Tonneau windshield..
Cable	Boyce Moto-Meter...
Wheel connections.	Dimming device.....
FENDERS, HOOD, ETC.	
Brackets	
Braces	
Runningboards	
Hood locks.....	
TOP	
Covers	
Bows	
Curtains	
BODY	
Dash	
Seats	
Doors	
Floor boards.....	
Finish	
Windshield	
EQUIPMENT	
Lamps	

Blank Motor Co.

Make

Body type

Capacity

Owner

Address

Phone

.....

Appraiser

The Laws of Used Cars

These laws have been deduced after a study of the used car industry. They should be studied thoroughly before using the depreciation curve on page 6. From time to time additional laws will be printed as they are developed. When per cent is mentioned it means percentage of the original list price.

1—Cars depreciate more or less according to what may be termed merits and demerits. The principal merits and demerits are shown in the two squares below on this page.

Merits

*Good quality
Low service
Good dealer
Advertising
Light weight
Low operating cost
Small tire cost
Up-to-date style
Continuance of model
Price not reduced*

Demerits

*Poor quality
High service cost
Unreliable dealer
Unadvertised
Unreasonably heavy
Expensive operation
Large, costly tires
Change of style
Abrupt change of models
Price greatly reduced*

If a car has no demerits you should figure at or above the BLACK LINE. In proportion as it has demerits, figure below the BLACK LINE and even far below the lowest shown curve.

2—If a car is in demand it is worth more than one for which there is little demand.

3—The higher the price the greater the depreciation normally.

4—The heavier the car the greater the depreciation normally.

5—If a company has gone out of business the depreciation of the cars is great. If such cars are old a junk dealer should be consulted before naming a price.

6—More can be allowed during the first 6 months of the calendar year than later, because there is more selling season left in which to sell the car.

7—Absence of electric lights and starter on old cars knocks off 10 to 30 per cent.

8—Big models drop when superseded by smaller, cheaper models.

9—Real car shortage makes used cars worth more if they are handled according to the rules on page 5 of this issue.

10—If the dealer is good

the car is worth more because of the reputation he has given it.

11—Snappy, stylish cars are worth more than cars that have no "looks."

12—When gas is high, small cars increase in value.

13—Tires, if in good condition, are about 10 per cent of the price of the car. If tires are "mail order" or not standard makes their value is low.

14—Marked improvements in the same model depreciate preceding cars.

15—A car, like the Ford, that seldom is changed, represents the least depreciation in cars. Factories that change greatly and often depreciate the value of past models.

17—Increase or decrease in your operating costs affect the allowances you can make. You can't handle

used cars successfully without an accounting system.

18—If the price of a model is raised the used car values of preceding models raise.

19—Low cost per mile to operate increases values.

20—Demand for cars of a certain price increases the demand for overhauled cars near this price.

Figuring Overhead, or Carrying Costs

IF your business is well systematized you probably know what it costs you per car to handle used cars and have made provision for this expense. This does not include overhauling. It covers rent, light, heat, insurance, and all such items. If your accounting system won't show you a better way to handle it do it this way:

Find out those expenses for your used car business for last year and divide it by the number of cars handled. In one big city the figure is very close to \$100 per car. In a small village where sales are few and the proprietor does most of the work the figure may be very, very small. But don't deceive yourself. Make sure you get it high enough. You may use a lump sum or a percentage.

Having found this figure use it in figuring the allowance on every trade you make.

National Association of Dealers Is Started

Representatives of a Dozen Dealer Organizations, Gathered in Washington to Fight 5% Tax, Begin Work of Organizing Whole Country

A NATIONAL association of automobile dealers has been started in the midst of the trade's fight against the 5 per cent tax on new cars.

A group of big dealers and representatives of big city associations, who had gathered in Washington to fight the tax, met last Friday evening in a room in the New Willard Hotel and set in motion the machinery which should make the long-looked-for and much-needed association a reality within a few weeks.

The name "National Automobile Dealers Association" was tentatively selected, and George W. Browne, Milwaukee, Overland distributor, was chairman of a Provisional Committee, which will set things going, inform the whole country of the plan and call a general organization meeting as soon as possible.

5 Per Cent Tax May Be Beaten

Meantime, the dealers in several of the large city associations are continuing their opposition to the 5 per cent tax and hope for good results. Their arrival in Washington last week and the submission of data to the Finance Committee of the Senate was followed by a hold-up of the 5 per cent tax, and it may be defeated.

The members of the Finance Committee, when presented forcibly with the dealers' side of the story, said, in effect: "Well! This is something we didn't know about. We'll go into this thing further."

Then came a delay of 10 days in the bill, which had been slated for passage the morning after the plea was made.

THE BILL MAY BE BEATEN, BUT IT WILL REQUIRE COOPERATION BY EVERY DEALER IN THE UNITED STATES.

As to how the association came into form: A great volume of work in op-

position to the 5 per cent tax had been done by the Minneapolis Automobile Trade Association, which also was active and sent its attorney to Washington at the time of the gasoline investigation.

Besides enlisting the country in writing and wiring to congressmen about the damage that would be done to dealers by the proposed tax, the association, through Roy B. Simning, its assistant secretary, sent out a call for a gathering in Washington of representatives of various associations.

Dozen Associations Represented

About a dozen associations sent representatives. These men, after having launched their opposition to the tax, met Friday evening in the New Willard. The associations represented in Washington at that time and the representatives were:

Minneapolis Automobile Trade Association, G. A. Will, attorney.

Milwaukee Automobile Dealers, Inc., George W. Browne, director, and Bart J. Ruddle, secretary.

Kansas City Motor Car Dealers' Association, Albert T. Clark, president, and E. E. Peake, secretary.

Omaha Automobile Trade Association, represented by its neighboring Kansas City association.

Chicago Automobile Trade Association, Edwin B. Bodley, attorney.

Grand Rapids Automobile Business Association, Ernest T. Conlon, secretary.

Columbus Automobile Trade Association, Harry J. Schwartz, director.

Indianapolis Automobile Trade Association, E. W. Steinhart, vice-president.

Scott County (Davenport, Iowa) Automobile Trade Association, Gardner Smith, secretary.

Washington Automobile Trade Association, S. L. Grogan, secretary.

San Francisco and the Pacific Coast, William Hughson.

Others, on the way, were expected hourly.

At the meeting Friday night Browne presided and Conlon acted as secretary. It was voted to call a general meeting as soon as the details can be arranged. This will probably be before the end of July.

These men were named a committee to draft a tentative constitution and by-laws: G. A. Will, attorney for Minneapolis; Bart J. Ruddle, secretary for Milwaukee; Ernest T. Conlon, secretary for Grand Rapids; Edwin B. Bodley, attorney for Chicago; E. E. Peake, secretary for Kansas City.

Every Car Dealer Eligible

The matter of dues was discussed, but nothing definite suggested. It is planned, however, to make the dues low and to provide for membership by every man who handles cars, even in the smallest towns. With between 30,000 and 40,000 dealers in the country it is estimated that 20,000 can be secured once the organization is given a good start.

The status of factory branches was also discussed, but nothing definite suggested. The branches are co-workers with dealers in many cities yet are in reality but arms of the factories. It is desired to work out a plan whereby the dealers and branches may co-operate effectively.

It was arranged that notification of the initial meeting and the proposed plan be sent to all the associations in the United States. As a starter, a list of about 50 was compiled and telegraphic notification sent.

Several representatives of the dealers are to be left on the job in Washington until the 5 per cent tax matter is settled.

5% Tax Abandoned

Senate Finance Committee Calls
Tax on Manufacturers Unsound
and Prejudicial and Cuts It Out

Bill to Be Rewritten and May Tax Cars in Hands of
Individual Owners, But Not Trucks

Makers and Dealers Must Continue Their Fight

WASHINGTON, D. C., May 28.—*Special to MOTOR WORLD.*—The 5 per cent war revenue tax to be paid by motor car manufacturers on all cars and trucks sold by them has been finally abandoned as unsound business and prejudicial to the general good of the country.

This action has been taken by the Senate Finance Committee which has practically decided to rewrite the entire war revenue bill as originally proposed by the Ways and Means Committee of Congress.

It was expected that the Senate Finance Committee would not be satisfied with the measure as passed in the House. This committee began its work by having hearings on the 5 per cent tax at which many representatives of the industry were present.

Still Need for Fight

Alfred Reeves, general manager of the N. A. C. C., is still spending all of his time in Washington, and considers the situation materially improved, but that the automobile industry is still a long way from final action in the matter and that the activities of factories

and dealers must not cease. Reeves believes that the Senate Finance Committee has been favorably impressed with the fact that a tax on gross business, whether on automobiles or anything else, should be eliminated.

In place of the 5 per cent tax on manufacturers there is a proposition under consideration by the Senate Finance Committee to place a tax on cars in the hands of owners, but not on motor trucks. It was suggested that this owners' tax would range from \$2 to \$25 per year, depending on the size of the car. This tax would be in addition to State registrations at present in force. It is not known exactly how such a tax could be imposed as heretofore it has been considered unconstitutional for the Government to levy such a war tax in addition to present State registration taxes, etc.

Senator Ollie M. James, of the Senate Finance Committee stated in answer to a query as to what extent automobile owners would be taxed under the Senate Bill to be drafted, that no decision had been reached on the question and that none would come before next week. Senator James is positive that it has been definitely decided, however, to eliminate the 5 per cent tax, and that in re-adjusting the tax from the manufacturer to the car owner it is expected to raise approximately as much money as the former bill.

Senator James stated further, however, that the Senate Finance Committee had referred to this matter of the owners tax to the Secretary of the Treasury for an estimate of the amount of money the treasury thinks should be raised in this way. Any definite action of the Senate Finance Committee as to the rate of tax will depend on the recommendations from Secretary McAdoo, who favors taxing the automobile owner direct.

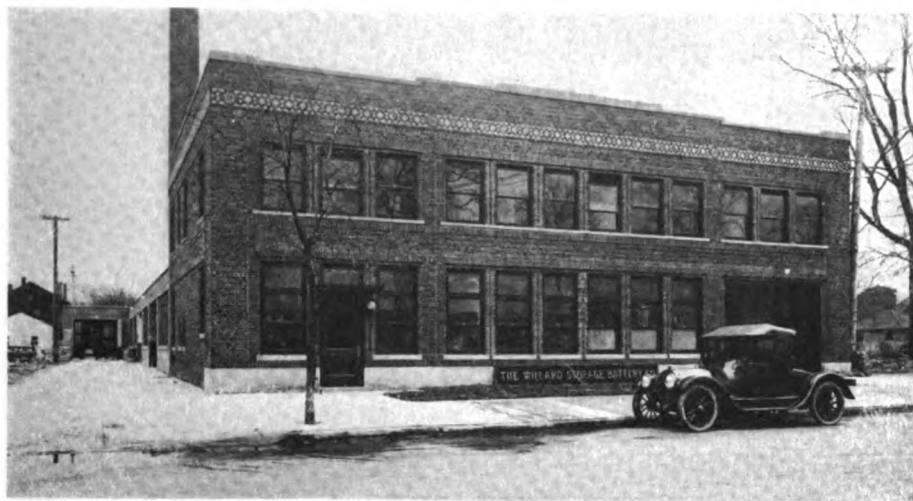
Propose Many Stamp Taxes

Many other changes are taking place in the war revenue bill as proposed by the Senate Finance Committee. Stamp taxes will take the place of taxes on manufacturers' gross sales. The tax on pianos, organs, and musical instruments not operated mechanically, has been struck out. The tax on moving picture films, jewelry, and chewing gum, has also been eliminated. No action has been taken on the proposed tax on yachts and pleasure boats.

It is expected that the Senate Finance Committee will frame a tax upon advertising in all its forms to produce an estimated income of \$15,000,000.

The individual members of the Senate Finance Committee are of the opinion that individual automobile owners throughout the country will not oppose a tax ranging from \$2 to \$20 per car. It will be necessary, however, before such a tax can be decided upon to introduce the bill in the Senate. Once it passes the Senate it will have to come before a conference committee of the House and Senate for approval.

FOUR TIMES AS MUCH Work per Man in New Willard Station



There is no curb service or congestion at the new Willard service station. The car entrance is through the door at the right, and the exit through the alley at the left

ONE man can do four times more work in the new Willard battery service station in Detroit than he could do in the old service station—the same man, but with specialized equipment, scientific arrangement, efficiency, light, order, system and plenty of room.

Where one man in the old station could only tear down from 15 to 20 batteries per day, in the new station he can readily tear down 100—because the peculiarities of battery service have been studied, analyzed and solved.

The difficulties in the old station are common in many of the battery, speedometer and starter service stations throughout the country. Their solution in the new service station will give a greater appreciation of what has been done.

The layout of the old station is shown in Fig. 1. It is of the "horseshoe counter" type—customers on the outside, shop and offices on the inside, and theoretically, at least, the work, workmen and equipment all centralized.

This layout was fine in the early days, when the number of jobs done was small and the customers not over particular. But to-day minute service is necessary.

Why Old Method Failed

This is impossible in the horseshoe shop. For example, suppose car No. 2, in Fig. 1, desires battery inspection only. Car No. 1, however, requires 2 hours' work. Though car No. 2 is ready to leave in 10 min., it must wait until No. 1 is finished before it can go out.

Meanwhile, all the rest of the cars in the place have to wait too. Those behind cannot leave when finished, and those in the alley have to stand in the

rain, sun or cold and take alley service. In short, efficient service with this arrangement is impossible because one car can hold up all the rest.

S. S. Jenkins, district manager, and P. H. Gribbon, city branch manager of the Willard Storage Battery Co., Detroit, are largely responsible for the layout of the new station. They outline the requirements of an ideal battery service station as follows:

Ideal Battery Service

1. The customer should be able to drive into the station the minute he arrives. He should be given a stall and a place to wait until the car is ready. Then he should be able to get away without bumping into every other car in the place.
2. Roadside service places the customer in a fault-finding frame of mind. Besides, he has to pay for a high-priced mechanic's time in walking from the shop to the road. We also found that the workmen were sick and had colds, due to going from the warm shop to the street and back. Hence the station should be large enough to house all the customer's cars.
3. Subdivision of work and departments should be absolute. Low-priced men should only do low-priced work. A mechanic should not truck batteries from the shop to the car. The charging room should be away from the garage, so that the customers will not be annoyed by the smell of the acid. The work should go through a definite cycle.

Now let us see how the new Willard station conforms to Jenkins' requirements.

The Plan

**Scientific Arrangement Adopted
Special Equipment Put In**

The Operation

**All Congestion Eliminated
100 Repairs per Day per Man**

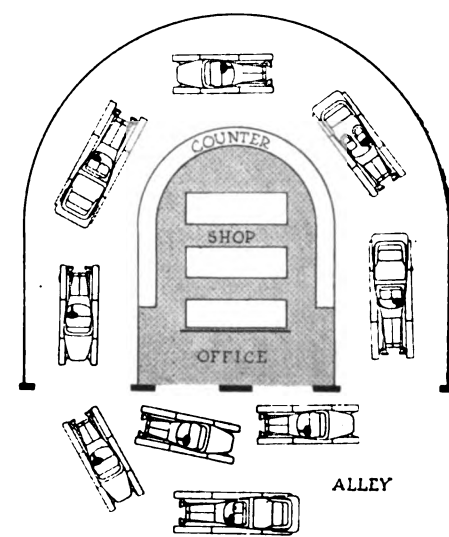


Fig. 1

Theoretically the old arrangement was correct, but in practice it bred congestion

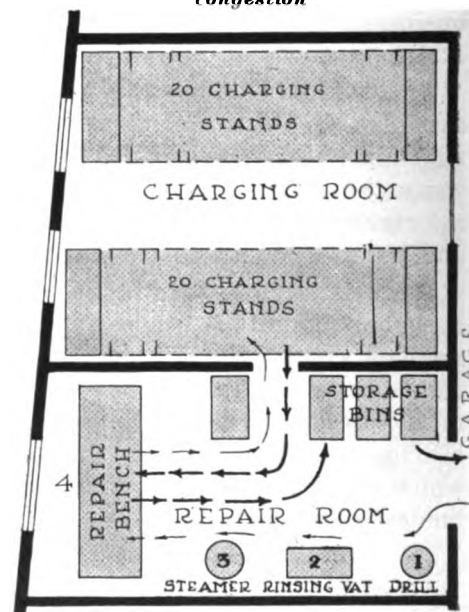
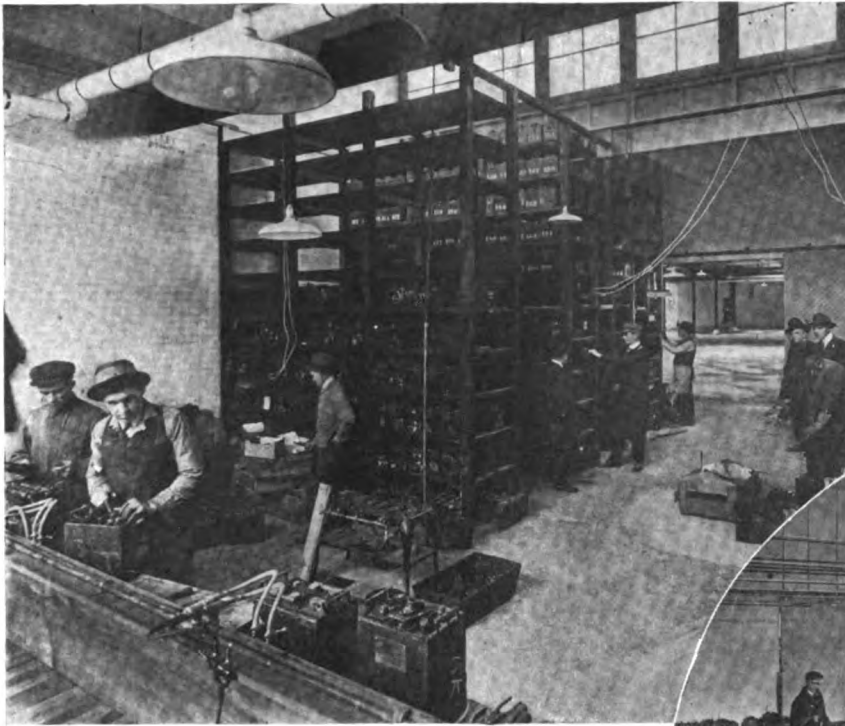


Fig. 2

The new arrangement means speed and efficiency, for every battery is carefully routed through the plant

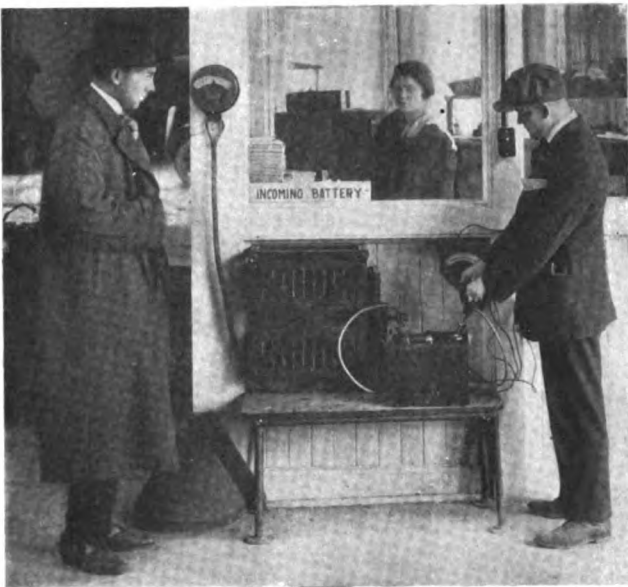


Where Efficiency Speeds Up Battery Service Work

This is the operating room, or repairshop. Note how the lead burning equipment is incorporated in the bench—and the racks for the repaired batteries



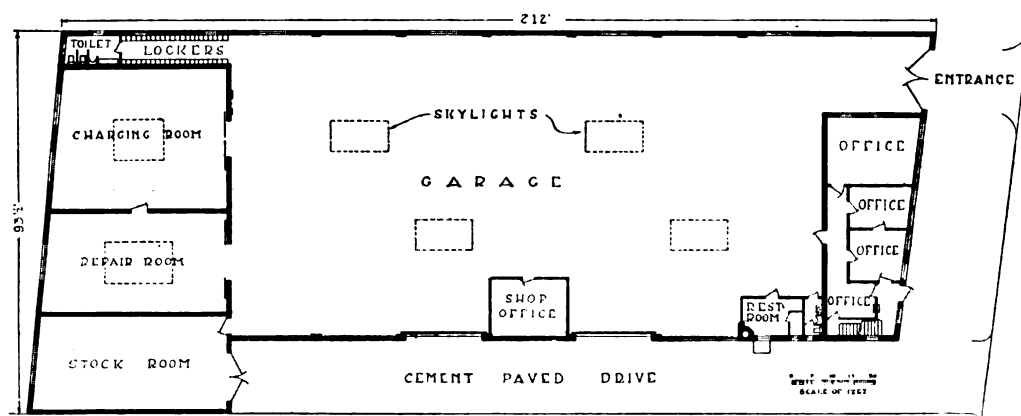
Where the juice is put into the batteries. There are forty 110-volt circuits, each controlled from the switchboard rheostat, and carried to the stands through metal conduit



Each battery is tested before the customer's eyes, showing him at once whether it must be torn down or not. The little lady in the cell is not Miss Ampere

The garage as seen from the entrance. Plenty of room, light and ventilation. At the left is the shop office, and at the rear are the repairshop and charging rooms





When the Willard Storage Battery Co. planned a new service station for Detroit, the arrangement and layout were carefully planned with a view to reducing congestion to the minimum and giving the car owner the best service possible in the shortest possible time. This shows the plan that was adopted.

The station covers a lot containing 25,000 sq. ft., and with the exception of the offices at the front is single story. This means plenty of room, freedom of movement and absence of elevator congestion. Skylights provide adequate lighting.

A glance at the ground floor layout shows that the greatest part of the station is given up to the garage. This is because a car takes up about 50 times as much room as a battery.

Capacity for 75 Cars

The going-in door is at the front, and is wide enough for two cars. Seventy-five cars may be accommodated at once, and any one of them may leave by either of the side exits at any time. Hence three of the requirements are satisfied at once—namely, free entrance and egress, a definite customer cycle and an absence of roadside service.

At the rear are the charging room, repairshop and stockroom. Stock may be taken directly to or from the stockroom on trucks through the alley, and in no way interfere with the regular battery service work. Or stock may be taken into the repairshop, as the stockroom and shop are adjacent. Hence the stock cycle is established.

Before establishing the cycle that the battery has to go through in being repaired and charged, it will be necessary to describe the repairshop and charging room. These are perhaps as modern and efficiently laid out as any in the country.

Layout of Repairshop

The repairshop is the center room at the rear. At the left of the door is a drill press, in Fig. 3. On entering the shop, the terminals are drilled and removed, and the battery passed on to the rinsing vat. Here all acid is drained from the cells and the cells washed, ready for tearing down and repairing.

Tearing down is but a minute's work. At the steamer the drained battery is placed bottom side up over a steam jet, and the sealing compound melted. Then by merely picking the battery up and letting it drop the top is knocked off and the plates removed.

At the repair bench the plates are inspected and repaired. New separators are fitted and the battery is assembled

with the exception of the top and connectors. These are left off until the battery is charged, because by so doing gassing and heating while on charge are reduced and the charging rate may be boosted.

In the charging room are 40 charging stands, each of 110-volt capacity. All leads to these stands go through a switchboard and rheostat, so that the amount of charge to any of the stands may be regulated or controlled. This room is light and airy, and closed off from the garage, so that none of the gases collect or get out to annoy the customers.

When properly charged the battery is returned to the finishing department, is placed in the finishing bench and sealed. They are then ready for the customer, and are placed in one of the storage bins awaiting installation in the customer's car.

The three cycles have now been established, namely, the customer cycle, the stock cycle and the repair cycle. The three are tied together by system—a third element of service. But let us follow a battery through the station and see what this system is.

How System Works

The customer enters by the front door and is met by a floorman. This man determines whether inspection and flushing alone are required, or whether some repair work must be done. The car is then given a stall, the location of which depends upon the length of time the car will be in the station.

If inspection shows that the battery must be charged, it is removed and a service station battery or "renter" installed in its place by a regular service man—a floorman, however, doing all the trucking and unskilled work.

The owner's battery is taken to the service station office and tested, this test showing whether the battery must be torn down or merely requires recharging. It comprises short circuiting the battery and testing each cell with a voltmeter, and shows both owner and workman on the spot whether the cell is inoperative.

Here the owner is given a receipt for his battery, and is charged for the rented cell. The owner leaves and the cell is carried either to the repairshop

or to the charging room, where it is placed in good condition.

When repaired and charged it is placed in the storage bin, and a postal is sent to the owner, who returns, leaves the rented battery and gets his own.

Several features are incorporated in the station that serve to make service less tedious. At the front is a ladies' rest room, fitted with easy chairs, telephone and magazines. The number of women drivers is constantly increasing, and a rest room for their use is an absolute necessity in the modern service station.

Outside the rest room is a public telephone for the use of the men—to be used at any time without questioning or disturbing any one in the organization.

Eventually the entrance and exit doors of the station will be fitted with electric openers, so that by throwing a switch the doors may be opened or closed with no effort or loss of time.

Battery service is a specialized service, and as such demands a specialized building. From the whole to the parts the new Willard station meets the requirements of that specialized service.

Missouri Has 6000 Tractors

KANSAS CITY, May 26—There are nearly 6000 farm tractors in use in the State of Missouri. J. C. Mohler, secretary of the Kansas State Board of Agriculture, has made a census of the State which reveals this figure. Mohler and Carl Vrooman, assistant secretary of agriculture, were guests at a dinner of the Kansas City Tractor Club last week, at which the problem of increasing farm production was discussed. The tractor club is urging that the tractor owners operate their tractors 24 hours a day and that they devise means whereby farmers not owning tractors may have the use of them.

Graham Ready to Deliver

EVANSVILLE, May 26—Graham Brothers are advising the trade that they have plenty of stock on hand for the production of the Graham one-ton truck unit. Raw materials contracted for some time ago are practically all delivered and the company states it is in a position to make prompt deliveries.



SECRETARY E. V. KIBBY ran his car into a ditch, disarranged things and then played possum in the ditch. Everybody fell for it. Kibby says he never knew how many friends he had until they thought he was a goner

Toledo Dealers Take Two Days Off And Startle Six Towns With Their Antics

THE Toledo Automobile Dealers Association has just held its first annual 2-day what-you-may-call-it run. It was neither reliability nor sociability.

All elements of sociability disappeared when the tourists began to display their motor dexterity in developing unreliability in their rivals' cars.

And such a night as the would-be sleepers put in at Lima! And such a night as Lima put in! But they all pulled through with nothing more serious than a fake wreck and there's going to be another run next year.



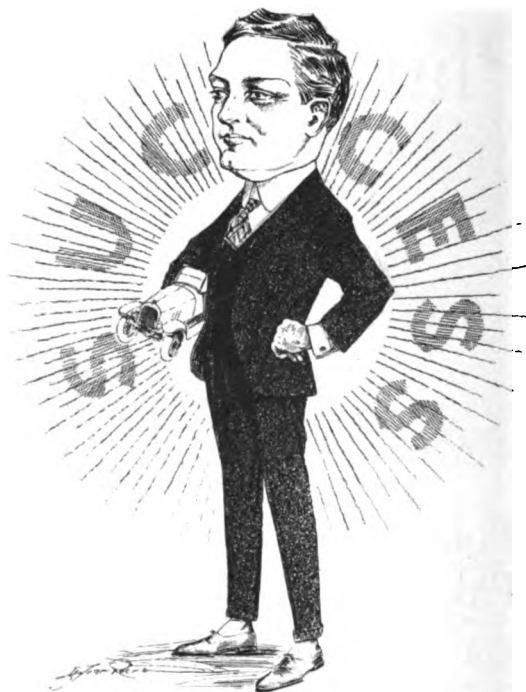
THE BEGINNING of the tour was at a point on Spellbusch Avenue





Look Like What You Want To Be

By Ray W. Sherman



"HOW are the two new salesmen, Tommy?" Reilly, the Sennett dealer in Callawassa, looked toward the street where one of the two newest Reilly recruits was starting toward the business section.

"Doing fairly well," replied the newly promoted retail sales manager. "They're coming along in pretty good shape."

"Beckwith is doing better than Maloney, isn't he?"

"Oh, I don't know—I don't know," mused Tommy. "They're both about even up so far. They're both pretty good workers and they both have pretty good heads. I guess they'll come along all right." Then after a while: "What made you think Beckwith was the better man?"

"Huh! Oh, I don't know. He looks it. I probably based by opinion on the way they look. And if I were in your place I believe I'd take Maloney off in a corner some day and tell him the value of looking the part he is trying to play."

"You mean his clothes?"

Doesn't Look Like Finished Product

"Not entirely. He dresses fairly well, but his whole get-up lacks spizz. He doesn't look like a finished product. He acts as though he were about a lap behind Beckwith—and I believe he will be if he doesn't get right before he's gone so far he is an old dog."

"The old-dog-ishness of the sales end of this business, Tommy, is one of the things that has hurt the car industry. We have a big raft of old-timers in here who are set in their ways and can't be taught new tricks. We can make modern, up-to-the-minute spizzers out of the young fellows we take in if they'll listen to what we tell them, and Maloney and Beckwith are in this class."

"Some of the old-timers could make a lot of money for themselves if they only would get a fresh hold on life and forget some of the things they know. Charley McGrain was an old dog. He

couldn't—or wouldn't—learn. He could not realize that he is at the age when men are getting set in their ways. But he was set all right—and I'm afraid he'll stay set."

"But take Maloney now. He's a young lad and should be easily molded if he is any good at all. When he sits down at his desk he does it in a mopey sort of way. He acts as though he were tired. And when he stands still he is inclined to let himself settle down in a heap like a human question mark. His head always hangs a little to one side. He leans against the side of the front door and smokes a cigarette now and then, and he hasn't the outside looks that indicate an up-to-snuff inside condition."

Correcting Bad Habits

"It's going to take a lot of drilling to get some of these earmarks off him, but it can be done if you keep after him. In fact, it'll have to be done if he's going to stay around here or anywhere else worth while. You may have a hard job making him see the wisdom of it. He may be of that type that believes he knows more than you and I rolled into one. Maybe he hasn't made the top of fool's hill yet."

"But no salesman, Tommy, can achieve maximum results if he doesn't look and act his part. Every salesman wants to be a successful top-notch. He looks up in his imagination—if he has any—to a snappy looking man, with an alert air, who bustles around and makes lots of money. But the trouble with the salesman who doesn't make the grade is that he lacks something that is part of his imaginary ideal."

"One of the things that would help Maloney the most would be to get the outside of himself right. Then the inside would not have such a hard time. Maloney droops. Get him to stand sideways in front of a mirror with his shirt

off. Let him stand naturally like the man in the army 'before' pictures. Then let him pull himself up and push his neck back like the army's 'after' man. About two looks and he'll never droop again."

"Tell him to keep his neck against the back of his collar and when his feet are on the floor keep them flat on the floor, not tipped over in a run-down-wheel fashion. If you can get him started right it will help him get his mind in the same alert condition. And he can't make much speed in this business unless his mind is alert. Mopey mentalities can only imitate and copy—and very little of that."

"The salesman who waits to see a prospect, and waits in a mopey, don't-care attitude, has hurt his cause before he starts—provided the prospect sees him. Looks count a lot in this world, Tommy, and you'll have to drill that fact into Maloney. They also count a lot in this business."

"When you want to make a used car sell what's the most important thing?"

"A coat of paint!" laughed Tommy.

Have Things Look Well

"Paint is right," added Reilly, "and if you're a gyp car trader you can get by with not much besides the paint. The psychology of it is the same as with the human being. People want good things."

"Whatever you want to be, a most important point is to look and act like that thing. If you want to be taken for a tough guy act like a tough guy—and pretty soon you'll be one. And if you want to be a successful, alert, active, pushing man of affairs start in training. Act alert, be active, stand straight, be businesslike in your conduct, make your body play its part and your mind will follow. The first thing you know you'll believe you're a winner, and once you get to that point you're almost there."

Plan for Forming an Accessory Dealers' Trade Association

EDITOR MOTOR WORLD: The article in the April 18 issue of Motor World on "Why Dealers and Garagemen Should Organize" was particularly interesting to the writer. Have you on file any outline or suggestions which would be of help in organizing a retail accessory dealers' association? Any information whatever on this subject that you can favor us with will be very much appreciated.—The Raybestos Co., Bridgeport, Conn.

BY accessory dealers is, in most cases, meant garagemen, for, compared with the number of garagemen who have accessory departments, small though they may be, the number of accessory stores is small.

Therefore, in considering accessory dealers the garages should be borne in mind.

1—Get a list. Assuming that your organization is to be in a city, you should compile a list of the accessory dealers in that city, and in it include the names of the men at the heads of these businesses.

2—Call on them. If possible, call on some of them and select some likely candidates for active working positions. Get these men to co-operate fully with you. Make sure they are sold on the idea and that their enthusiasm is not of only one day's duration. You now have your working staff, if such it may be called.

3—Write letters. To the list mentioned in Paragraph 1 send a letter, sounding out sentiment on the association question. Enclose ALWAYS a stamped return card or envelope. Follow this up in close succession with one or two more letters. From the returns you can gauge sentiment on the question.

4—Call a luncheon meeting, a dinner meeting or a plain evening meeting. Divide the entire mailing list among your assistants and yourself and see that every dealer gets a personal invitation by telephone the day of the meeting. Go hard after the whole list for this first meeting. The luncheon expense will gladly be stood by the dealers, although it is not amiss to do this yourself if you can afford it and if the dealers will not take exception to it. Generally they appreciate such activity in behalf of trade betterment.

5—While eating see that these men get acquainted with each other. If there are trade enemies endeavor to reconcile them before and during the luncheon. While eating talk over trade problems. Ascertain the worst evils in need of correction and have them well aired. Let each man realize that there are important things that need to be done. Have a lively session. See to it yourself that conversation does not lag and that there are things to talk about. If things begin to lag a wet blanket will soon settle down over everything. If it is a large crowd get up and walk around once in a while and shake hands with people you haven't seen before.

6—As soon as the tables are cleared and all the waiters are nearly finished with their work, rap the meeting to order and suggest the nomination of a temporary chairman. You'll probably get this job yourself. You ought to have it if you can run the meeting with spizz and pep. Getting a slow man in at this point would be damaging. Then discuss the question of organization, whether it is necessary, why it is needed, what it can do, whether the crowd wants it and all such questions. Keep the discussion going.

7—Formal organization. When the discussion has gone far enough have some man move "that we organize as the Association." When seconded, this question may be discussed. The officers should include a president, vice-president, secretary and treasurer. When the president is elected he takes the chair. Try so to arrange that a very live man and a good meeting runner will be selected. Then elect the other officers, decide on a board of directors or executive committee, provide for by-laws and settle on the rest of the details.

8—Settle the date of the next meeting and at this next session see to it that some important question is scheduled and that every dealer in town is notified one or more times that he should be there. Then take up this subject and get some action on it. Don't just chew the rag and get nowhere. See to it that the subject is one that vitally affects the trade, such as an ordinance or a business tax that is unjust.

9—If possible, do this same thing in the next city.

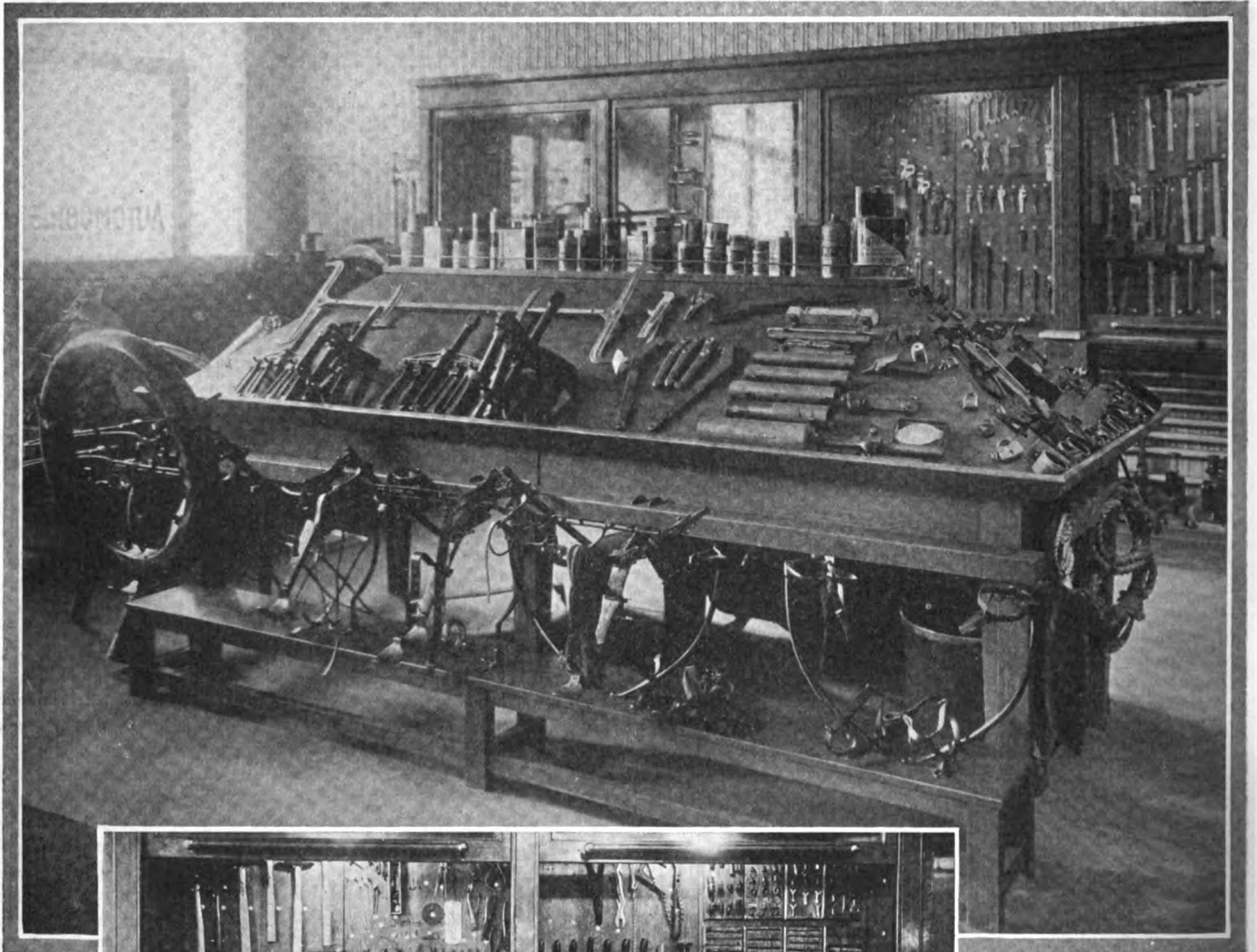
10—After several cities have organized call a State meeting and proceed similarly with State organization.

11—Handling an organization is a job for a live man. The meetings should be run in a live way or interest will die. The program for each meeting should be laid out beforehand and every member notified. By giving the members lots of WORTH WHILE work to do their interest will be made to grow and the association succeed.

Trailer Company Formed

GRAND RAPIDS, MICH., May 25—The Sampson Trailer Co. has been organized with an authorized capital of \$150,000 with \$80,000 paid in for the manufacture of trailers. The company has taken an option on a site and it is expected the deal will be closed immediately and that the erection of a factory building will begin next week. The company will start operations with 50 employees. E. T. Towar, of the Towar-Aires Co. of Detroit, will be president. Maynard Smith and other outside capitalists are interested. Frank T. Hulswit, president of the United Motors Truck Co., is an important factor in the enterprise and it is through him that it has been located in Grand Rapids. The United Motors Truck Co. is producing 50 tractors a month.

If You Do It This Way It Is Done A Good Way

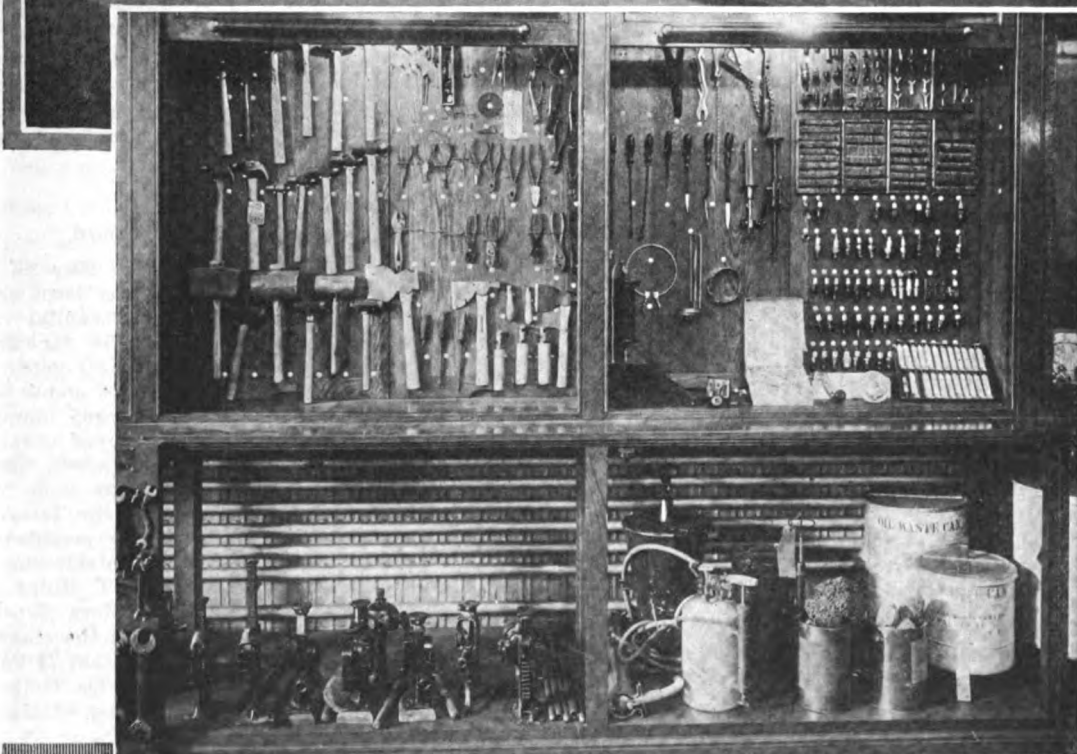


UPPER PICTURE

This fixture is both a display device and a stock-keeper. Note how the tire holders are displayed on the small bench in front. Note also how bars, tools and parts are shown in their range of sizes on the tilted bench. And a waste basket, tow rope and other goods find ready placement

LOWER PICTURE

This display is behind glass doors, but it doesn't look it, does it? Somebody must keep these doors scrubbed pretty clean. And wouldn't YOUR conscience be easy if you knew your stock was as well displayed?



THE pictures on these two pages are from the establishment of the Motor Car Equipment Co., New York, a wholesale house. There are lots of good ideas here. Look them over and see how many you can use.

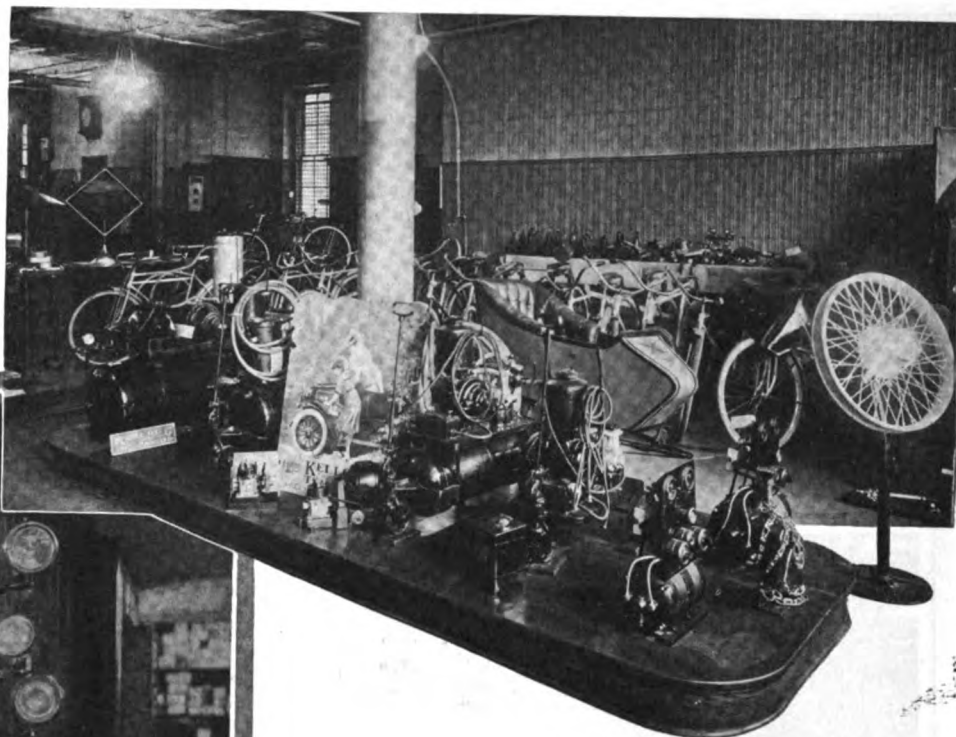
PICTURE AT RIGHT

Did you ever see anything neater or more systematic? Even the cord on the telephone isn't tangled up. Aside from the neat drawers and paneled counter it is worth while to note the manner in which manufacturers' display devices are used



PICTURE BELOW

This bunch of lamps was so dazzling it was hard to get a picture of them, but you can see there is a lot of lamps and can readily imagine what a diamond-dazzly corner this must be. Where do you keep your lamps? What do you think of this arrangement and display?



PICTURE ABOVE

Do you see the advantages of this little platform? It makes possible the display of garage equipment and heavy goods that must be shown upon the floor. But if you leave them on the floor folks may monkey with them, so they are shown low enough to be seen but are set on the platform and, more than that, each wheel rests on a little block. And this company sells bicycles. Did you ever consider whether there was money in selling bicycles? Is there?



Fulton Truck in Production

Fulton truck chassis, 3000-lb. capacity, 136 in. wheelbase



FARMINGDALE, N. Y., May 24—The Fulton Motor Truck Co. has started active production of its 3000 lb. truck in new factory buildings which now have been practically completed. The buildings are located on ground that was cultivated land on Aug. 1, 1916. At present the company has 18,000 sq. ft. of floor space, 9000 more sq. ft. to be roofed over and an additional 9000 sq. ft. in process of construction.

The vehicle will sell for \$1,090 in chassis form and is entirely orthodox in construction. It has a $3\frac{3}{4}$ x $4\frac{1}{4}$ L-head, block engine rated at 22.5 h.p., and carried under a hood in front of the driver's seat. A distinctive feature is the use of a 20-in. fan behind the radiator. Ignition is provided by a Splitdorf Dixie high-tension magneto with set spark, and lubrication is by a combination pump and splash system. The power transmission elements include a dry plate, multiple disk clutch in unit with the motor and gearset. Front springs are semi-elliptic, 42 x $2\frac{1}{4}$, and rear springs, also semi-elliptic, are 50 x $2\frac{1}{4}$.

The wheelbase is 136 in. and the steering gear will be at the left for domestic trade and at the right for export. Wheels

are 34 in diameter, both front and rear, front tires being $3\frac{1}{2}$ singles, and the rear tires, $2\frac{1}{2}$ in. dual. The rear axle construction is of the Daimler internal gear type with a heavy dead axle carrying the load. Standard equipment includes a horn, two side lamps, tail lamp, tool kit and jack.

The present capacity of the plant is 3 trucks a day, with the expectation that 2500 will be turned out during 1917. The factory is now running 24 hours a day with a mechanical force of about 75 men. The main factory building is brick, steel and wood, one-story in height, with a saw tooth roof. When the entire development, now planned, is completed, it will consist of two wings of 15 units each affording 90,000 sq. ft. of floor space. Each unit is to be 20 x 150 ft.

Thompson President of Abbott

CLEVELAND, May 24—Alfred Thompson has been elected president and general manager of the Abbott Corp., of Cleveland, succeeding Guy W. Morgan. Thompson was at one time manager of the Pope-Toledo Co., later manager of the plant of the Rutenber Motor Co.,

following which he was production manager for the Maxwell Motor Co., Inc. Lately he has been the production manager of the Hudson Motor Car Co.

All-Season Elects New Officers

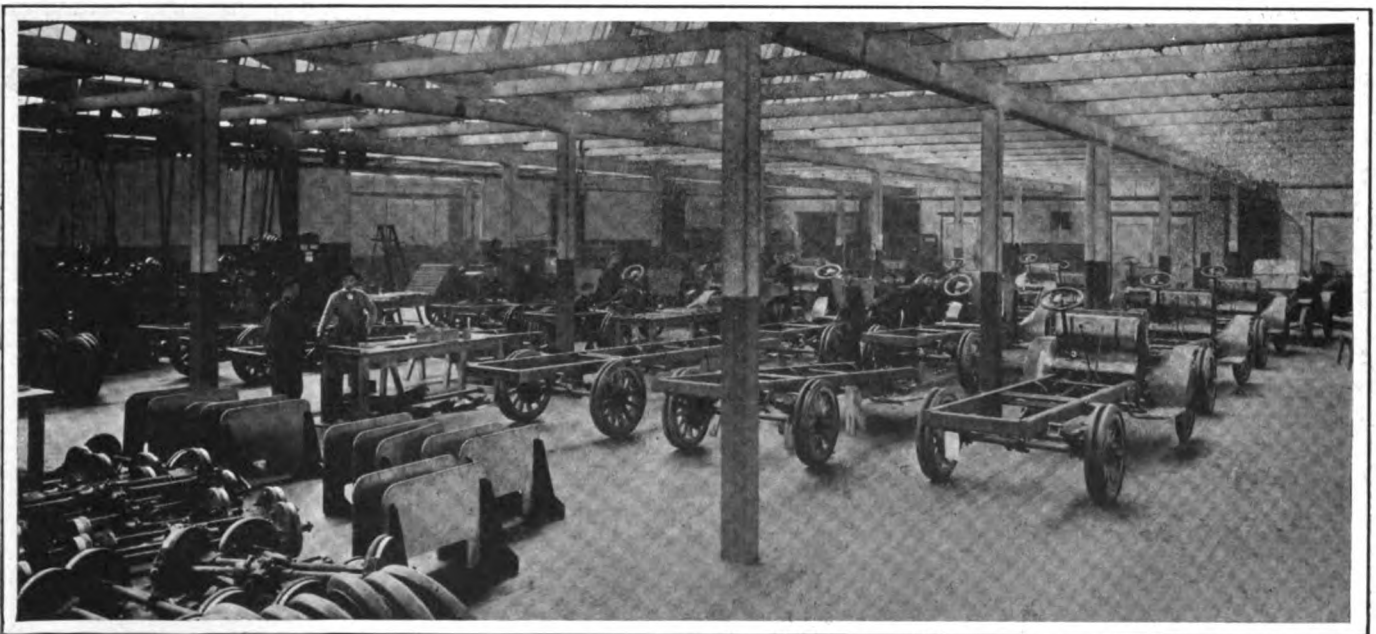
MARSHALL, MICH., May 25—Following the resignation of officers and directors of the All-Season Body Co. new officials have been elected as follows: F. Raymond Bothwell, of Jackson, Mich., accountant for the Briscoe Motor Corp., secretary; J. A. McAvoy, vice-president, has also assumed the duties of treasurer. Other officials have not yet been elected. The company is increasing its production to a capacity of 25 bodies a day within 2 months, at the end of which time plans will be formulated to increase this to 50 bodies a day.

Dixie Magneto Kink

Overheating causes much of the pitting of magneto breaker points. This is often due to lack of air circulation inside the breaker box. By the removal of the breaker box, and cutting several slits with a hack saw in the under side of the shell, openings are provided for air circulation. All excess heat is carried away, and the pitting of the points is greatly reduced.

Hupmobile Auxiliary Tire Rack

By the use of this auxiliary rack, the standard Hupmobile tire rack may be used to carry two tires, instead of one. It is a V-shaped metal brace, bolted at the ends to the rim, and at the center to the vertical brace. The upper part of the second tire rests on horizontal arms at the top of the V-brace, the lower part being strapped to the lower part of the first tire.



Fulton truck assembly. At the left is the parts assembly, in the center the finished assembly, and at the extreme right are trucks undergoing final inspection. The machine shop and stockrooms are partly visible at the rear

Repairshop Shortcuts

*From The Motor
World Roadman*

(No. 1200) AIR ACTING GREASE GUN

The grease is forced from this gun by air pressure acting on a leather cupped piston. The barrel of the pump is iron pipe, closed at each end by a pipe cap, one end carrying a delivery snout and the other a relief cock. Due to the manifold and petcock arrangement, the piston may be forced in either direction by air pressure. A button nosed delivery cap permits grease to be forced into the cup without loss.—J. C. Harris, The Gibson Co. (Overland), Indianapolis.

(No. 1201) SMALL MUFFLE FURNACE

When overhauling a car, all loose frame rivets should be removed, and new rivets replaced. The furnace illustrated was designed to heat the rivets before placing them in the frame and heading them over. It is fire brick, built into the form of a box, and lined and covered with fire clay. Heat is supplied from the burning of city gas and air mixed in a small blow torch. This torch is a pipe Y with one leg attached to the gas main, another to the air pressure line, and the

third leading to the furnace. The supply of air and gas is valve regulated.—Ed. Smith, Standard Automobile Co. (Cadillac), Louisville, Ky.

(No. 1202) INSTRUCTION BOOK MOUNTING

Instruction books are indispensable for quick and efficient work in the shop, but the difficulty is that the book soon becomes so soiled and frayed that it is useless. A way out of the difficulty is to mount the pages on heavy cardboard and hang it on the wall. Two books will be required. The surface may be varnished for protection.

(No. 1203) TRAVELING HOIST

A structural steel traveling hoist is expensive, and in a small repairshop but little more satisfactory than a wooden hoist. At each side of the shop, close against the wall, triangular braces are made of 2 x 8 in. pieces bolted together. Joining the tops of these braces is a 2 x 10 in. clear timber beam, providing a track for the hoist. The hoist comprises a flanged wheel, mounted on a U-shaped

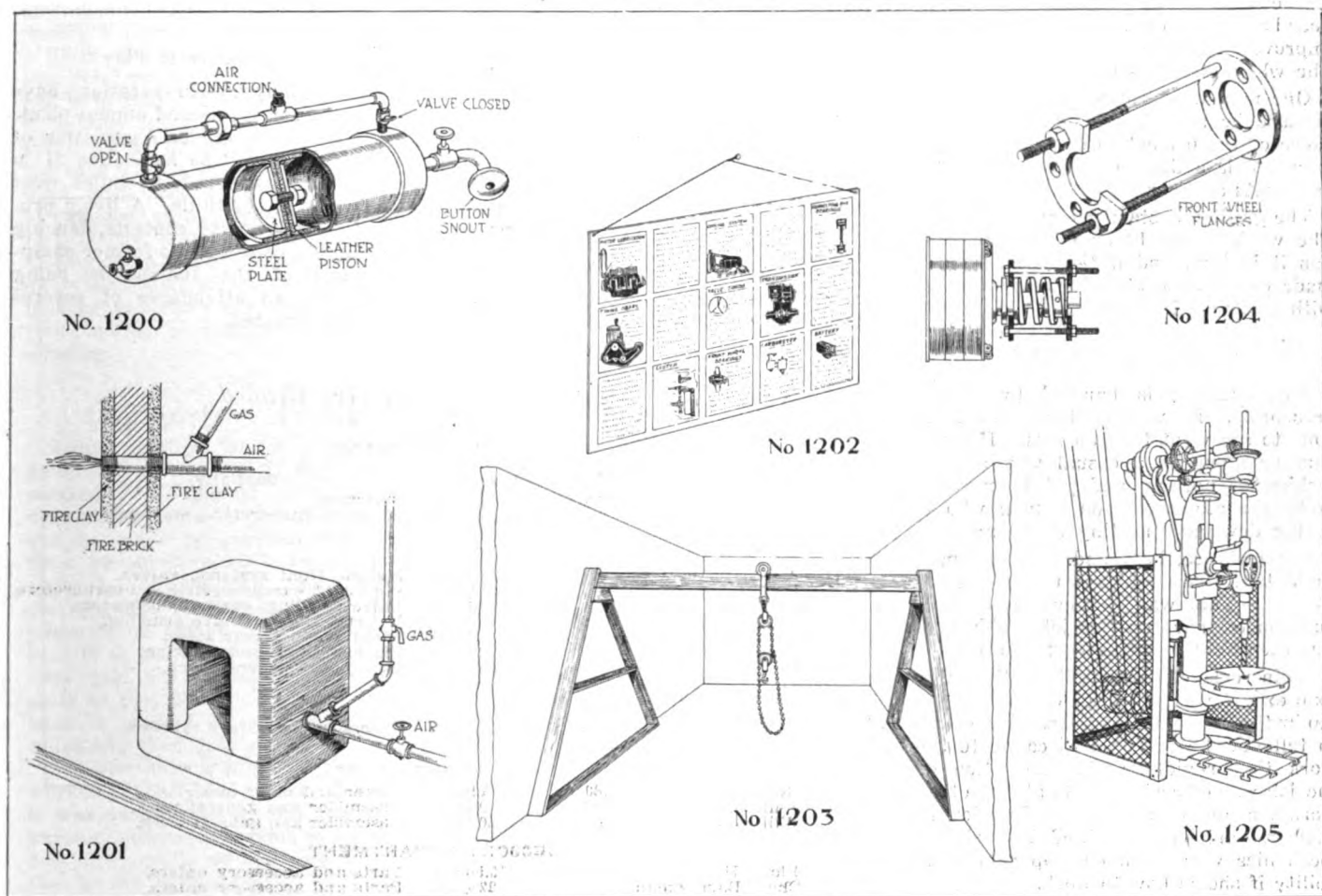
bar, to which the chain block is attached, permitting the work to be lifted and carried to either side of the room.—Raappe Motor Car Co. (Oldsmobile), Omaha.

(No. 1204) FORD CLUTCH COMPRESSOR

This is a device for compressing the Ford clutch spring. The end plates are Ford front wheel flanges, one being cut away, so that it may be inserted over the shaft, behind the spring. Two bolts connect the plates, and by tightening the nuts, the plates are drawn together, compressing the spring.—Ed. Rossler, The Smalley Garage, Toledo, Ohio.

(No. 1205) DRILL PRESS GUARD

Safety is as essential in the repairshop as in the factory. A simple form of belt guard may be applied to a drill press preventing injury to the workman. It consists of a framework of 1 in. angle iron, riveted together, and covered with wire netting. A similar framework may be used on almost any machine tool.—H. Parsons, Studebaker Service Station, Indianapolis.



Helping the Mechanic Do His Best Work

Most of the Work Mentioned in This Story Is on Ford Cars

Determining what each man can do best and then letting him become more and more expert in that work makes a shop highly efficient, according to Lee Jacobs, who manages the shop of the Lamberson-Hunt Co. in Oskaloosa, Iowa.

THE mechanic who is an expert on axle work will earn more for himself and the dealer and will assure a more satisfied customer clientele if all the axle work that comes in is assigned to this axle expert.

Jacobs has the men in the organization graded in three classes, A, B and C. The accompanying table shows how the grading runs. Any man is likely to go up or down the scale according to how he works. Good men go up—always—and get more money. The man who slackens after he has been promoted goes back down the scale again, but if he improves again he is moved up again. The whole situation is up to the man.

One man was dropped down the scale because he sulked. He was "sore" because of the promotion of another workman. This sulking cost the sulker several cents an hour.

The grading system is very democratic. The washer may become foreman if he has it in him, and if the foreman isn't made of foreman stuff he may wind up with a sponge in his hand.

All Men Are Graded

This grading is handled by Jacobs personally. He watches the men all the time to see what they do best. He may saunter along in a casual way and be looking at nothing and yet he may be holding a stop-watch on a man who is taking down and putting up an axle.

For instance, he found that one man could take down and put up an axle in 2½ hr. This was the best time ever made in the shop on this job. This man was then classed as the best axle man.

To increase efficiency still further, this axle expert was asked, at one of the organization meetings that are held often, to tell how he operated to complete the work that rapidly. His description of the job was of assistance to all the other workmen and was valuable education to washers and polishers and less skilled mechanics who often develop wonderful ability if shown how to work.

As a workman in these meetings tells his story he is open to criticism and suggestions as to how he may improve his own work. These meetings become a clearing house of shop ideas and are enjoyed by all the men.

It was found that one man could assemble four Fords in a day and that he finally became so skillful he did six in a day. Some of the men can put up only two cars a day.

Uses 9 Fewer Men

When Jacobs became manager of the Lamberson-Hunt business there were 27 men. This number he reduced to 18 after a scientific re-arrangement of the work. The blanks after 3A, 4A, 12B, 13B and 15C indicate that men in those grades are needed and must be supplied to keep the force up to adequate size.

Jacobs endeavors to apply advanced methods in all his work. When he managed another business he one afternoon sat down at the telephone and sold ten Fords in two hours. It astounded the dealer who was employing Jacobs. Such a thing had never been done before, yet

all Jacobs did was take a couple of otherwise waste hours and do a little plugging on the prospect list.

When he trades he never says: "I'll allow so much for your old car." He says it this way: "I'll trade with you for your car and so many dollars to boot." This "to boot" business is familiar language and gets the prospect's mind off the fact that he has set out to get a certain figure for the old car. The psychology of it is good and, getting a big enough "to boot" figure, he will trade for anything.

Denver Dealers to Play

DENVER, May 26—Preparations have been started for the second annual picnic of the Automobile Trades Association of Colorado, which will be held June 21 in Lookout Mountain Park, 20 miles west of Denver in the foothills. A lively program of athletic sports, contests, dancing and "heap big eats" in this former camping ground of the Indians is being planned, and an attendance of several hundred is expected.

This Is How the Men Are Graded

REPAIR DEPARTMENT.					
Grade	Employee	Charge	Wages	Specialty	
1A	Chas. Trasher....	\$0.90	\$35.00 wk.	Foreman.	
2A	George Graff.....	.80	28.85 wk.	Magneto, carbureters, starters.	
3A	.....			
4A	.....			
5B	A. E. Bentley....	.75	.33½ hr.	Motors, front systems, valves.	
6B	E. Munsell.....	.75	.33½ hr.	Ford cars, except electric and carbureters.	
7B	D. Jewell.....	.75	.25 hr.	Valve grinding, overhauling motors.	
8B	Dave Smith.....	.75	.25 hr.	Battery, Electric valve grinding.	
9B	John Ferguson....	.75	.25 hr.	Front systems rear axles.	
10B	Dall Knight.....	.75	.30 hr.	Blacksmithing and reboring.	
11B	B. Trout.....	.75	.28 hr.	Motors and general work.	
12B	.....			
13B	.....			
14C	H. Montgomery..	.60	.22½ hr.	Accessories and rear systems.	
15C	.....			
FRONT					
16C	Geo. Jones.....	.60	.25 hr.	Porter and night man.	
17C	John Watts.....	.60	.20 hr.	Assembler and general work.	
18C	Wilbur Johnson..	.60	.20 hr.	Assembler and general work.	
ACCESSORY DEPARTMENT					
	Floyd Hatcher....	..	\$16.50 wk.	Parts and accessory orders.	
	Chas. Barrowman..	..	.22½ hr.	Parts and accessory orders.	

Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge, but be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a two-cent stamp and your correct name and address. Write plainly.

How a Coil Works

Answering E. A. Wallace, The City Garage, Normangee, Tex.

There is no difference in the winding of a vibrator coil and a transformer coil, except that the former has some sort of a circuit breaker and the latter has not.

In either case the coil consists of two windings, a winding of relatively few turns of coarse wire to carry the low-tension current, and around these are many turns of fine wire in which the high-voltage current is produced. Whenever an electric current rises or falls in value in the low-tension circuit, a high-tension current will be generated in the high-tension winding.

An alternating current rises from zero to a maximum, then goes back to zero, and then the process is repeated with the current flowing in the opposite direction. This rising and falling takes place continuously, with the result that a similar current is generated in the high tension winding. Thus, you see, that an alternating current is ideal for producing a high-voltage current in a coil.

Since the direct current is a steady one, some means must be used for causing it to rise and fall in value, and this is done by breaking the circuit. The circuit may be broken mechanically, as is the case when a cam-operated breaker is used, or it may be broken magnetically by the use of a vibrator. But the object is the same in both cases. It is merely to change the direct current into an intermittent direct current, and this in turn generates the high-voltage current in the secondary or high-tension winding.

Generator Trouble

Editor Motor World: There is a generator on a Buick 37 that has never worked as it should. It seems that everything is as it should be, and it can be made to generate for a short time by doing almost anything to it, such as wiping the commutator or cleaning the brushes, and then for apparently no reason it quits again. We sent it to the Delco service station, and they said the cutout contacts did not close as they should, but when we put it back it worked all right for about 50 miles and then quit again.

We also have a Buick 19 that has not worked properly for a year. Before that it was as good as any for power. Carburetor adjustment seems to have no effect on it, while we are sure the trouble lies in the carburetion.

The motor will not idle with the throttle anywhere near closed, and then without touching the throttle the motor will speed up. You can also speed up the motor by opening the economizer air valve on the manifold, but just after speeding up the motor dies.

The valve stems are rather loose in the guides. New carburetors work the same as the old ones.—Subscriber.

Answer.—It seems likely that there may be several little things the matter with this starting and lighting system, and we would suggest that you go over every detail to see that all connections

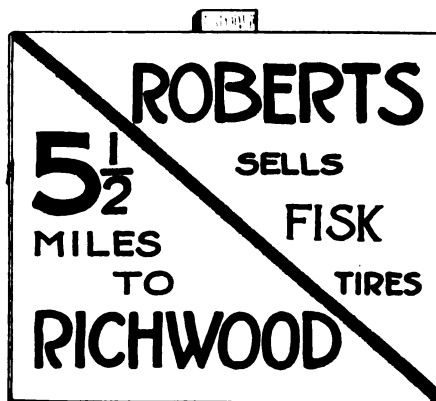


Fig. 1—Garage road sign rendered distinctive by diagonal colored line

YOU CAN

buy all kinds of cars,
but if you want
big value for your money
you'll buy a Double Six
car. We have

cars now
but we won't have
many later
on. They're
going to be hard
to get.

Drop in and see

ROBERTS
Mann St., Richwood, Ohio

Fig. 2—Newspaper ad with diagonal line to attract attention

are tight, and all parts are clean, and so forth. At the same time there are several places where you should look specifically for the trouble. The spring tension on the relay may be too great with the result that the points will not open. There is also a good chance that the driving clutch slips. This can be tested by operating the engine and trying to hold the armature with your hand. If this is possible the clutch slips. This defect is due to lack of lubrication.

We agree with you that the trouble with the Buick 19 is in the carburetion system, but believe that it is not in the carburetor, but is caused by an air leak some place in the manifold. It seems quite likely that the economizer valve jars open and then jars closed again. Or if this is not the case, it may be that there is a leakage of air through one of the manifold gaskets. If you find that everything is all right, the trouble must be laid to the leakage past the valve stem guides.

You should be able to determine whether this is the case or not by smearing some heavy lubricant on the guides and then noting whether the engine idles any better. The lubricant should prevent the passage of air for a short time and thus prevent leakage.

Road and Newspaper Advertising

Answering R. A. Biddle, care R. D. Roberts, Richwood, O.

A road sign is shown in Fig. 1. You may make it any size you want it, but it should be at least 2 ft. high so that it can be easily read.

The diagonal bar across the center should be a very bright red; the background of the sign should be white, or some color which contrasts with red. This bar should be the only red thing on the sign, and you should use it on all your signs so that when a person sees a sign with the red bar on it he will recognize it as yours.

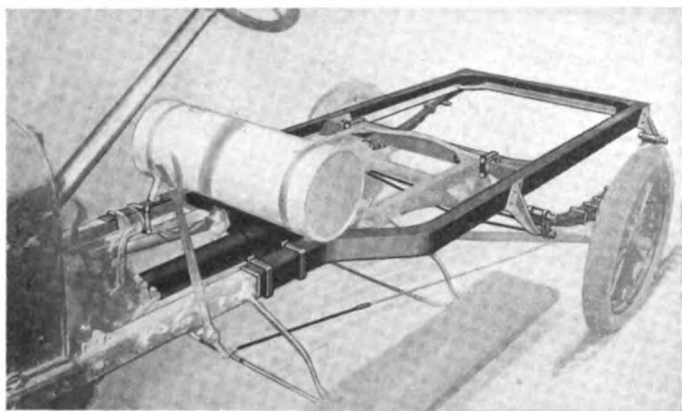
In place of Sells Fisk Tires you can say a great many things, such as Roberts Burns Out Carbon, 5 miles to Richwood; Roberts Paints Cars, 1 mile to Richwood; Roberts is a Battery Expert, 2 miles to Richwood; Roberts Vulcanizes Tires, 5 miles to Richwood; Roberts Sells the Overland, 4 miles to Richwood.

As to advertising, we suggest a similar bar. You can have this put together by a printer and have a cut made. Inasmuch as the bar in the advertising cannot be colored you should adopt some distinctive bar and stick to it, Figs. 1 and 2.

At the bottom of the ad we would have the word Roberts and below it the street and name of the town.

If you cover the country with road signs with this particular bar and feature this bar in your advertising, and advertise frequently with small space rather than seldom with large space, we believe you will get the public around Richwood so that they will think of the name Roberts every time they see a bar of this kind on anything.

□ □ Accessories □ □

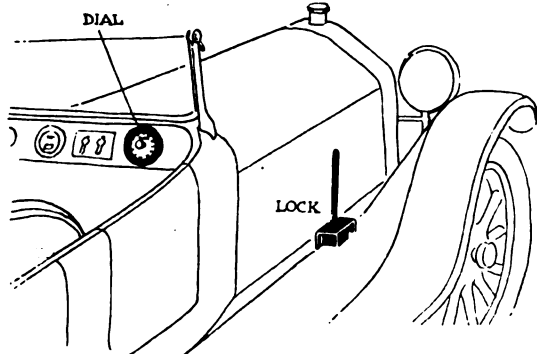


HOBART BATTERY CHARGER

A $\frac{1}{2}$ kw. motor-generator outfit for one to seven ordinary storage batteries. It has automatic voltage control which makes it possible to charge batteries of different voltages at the same time. Increased efficiency has reduced the current cost per battery from 20 to 15 cents. It is easy to operate; no electrical experience is required. It is sold on time payments.—Hobart Bros. Co., Troy, O.

ASCO BRACE FOR FORDS

A brace which is attached to the Ford frame and running boards. It gives a firm support to running boards and fenders, and reduces rattles. Price, \$2.50.—George F. Fishburne, Charleston, S. C.



MASTER BODY FOR FORDS

This body converts the Ford into a snappy looking sport car. It is heavy steel, built over a reinforced wood frame, and finished in black. A heavy steel hood, V-type radiator shell, and tire carrier are included. The price is \$114.—The Master Body Co., 570-580 Franklin St., Detroit, Mich.

UNITY TRUCK CONVERTER

Enables the Ford to be changed into a 1250 lb. truck. A new frame and springs are used, but the same wheels and axle. The driveshaft is lengthened since the wheelbase is 20 in. longer. Price, \$150.—Unity Motor Truck Co., Engineers Building, Cleveland.

PURFEX GRINDING COMPOUND

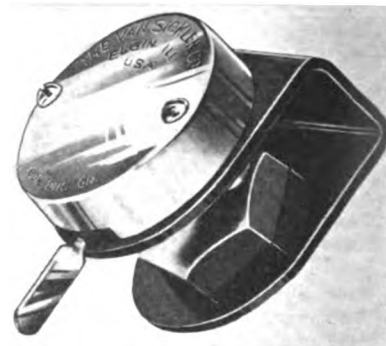
Two grades, coarse and fine. A display box containing 12 sets lists at \$3; large cans for garage work containing $1\frac{1}{2}$ lb. of coarse or fine, price \$1.50.—Purfex Mfg. Co., Philadelphia.

LOXIT IGNITION AND HOOD LOCK

A combination lock flush with the instrument board. It shuts off the ignition and at the same time locks both sides of the hood by magnetically operated locks. Price, 10. It is made for all cars.—United Motor Accessories Corp., Pittsburgh.

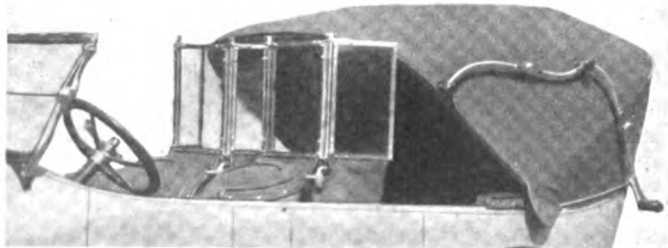
DUTCH BRAND PRODUCTS

A wide variety of shop and road accessories are produced under the Dutch Brand. These include brazing compound, for brazing cast iron, in 1-lb. packages at 70 cents; graphite grease in 1-lb. cans at 60 cents; 5-lb. cans at \$2.70 and 10-lb. cans at \$4.50; flake graphite in $\frac{1}{2}$ -lb. cans at 50 cents, 1-lb. cans at 80 cents and 5-lb. cans at \$3.50; ground graphite for use in engine cylinders in $\frac{1}{2}$ -lb. cans at 50 cents, 1-lb. cans at 80 cents and 5-lb. cans at \$3.50; puncture cement for patching, in three sizes of tubes at 90 cents, \$1.50 and \$2.50 per dozen, and pint, quart and gallon cans at 90 cents, \$1.50 and \$5; soapstone, in $\frac{1}{4}$ -lb. sifter top cans at 90 cents a dozen, 1-lb. cans at \$1.32 a dozen, and in 150-lb. sacks at 6 cents a lb.; Rubber Seal for mending cuts, gouges and blowouts, at 90 cents the outfit; liquid rubber tread filler at \$4 a dozen tubes; Varni-Brite for polishing varnished surfaces at 50 cents a pint can; Carbo-Cide for removing carbon deposits, at 70 cents a quart can; top and cushion coating for renewing fabric and leather, at \$10.50 a dozen pint cans; Black-The-Brass is for covering worn metal parts and producing a hard, smooth dead finish, \$5.50 a dozen $\frac{1}{2}$ -pint cans; Radiator seal compound for curing leaky radiators, 50 cents an 8-oz. can; valve grinding compound containing both coarse and fine, 40 cents per box and 70 cents a tube for either coarse or fine.—Van Cleef Bros., Chicago.



VAN SICKLEN HEADLIGHT SWITCH

A switch for either dimming or concentrating Ford headlamps. When the car speed drops and the headlamps are dim, the switch lever may be moved so that all the current is thrown through one headlight. On the other hand, when traveling at fair speed through towns having headlight dimming ordinances, the switch may be moved to DIM inserting resistance which cuts down the intensity of the light. At all other times the switch is left at ON, allowing the headlights to operate in the ordinary way. It is easily attached since it is only necessary to add three short wires and there are no wires to remove. Price, \$4.—Van Sicklen Co., Elgin, Ill.



TONNEAU WINDSHIELD FOR DIVIDED SEATS

This windshield resembles the standard tonneau design except that two small doors are provided at the center so that by opening them a person may pass through the aisle between the seats. In other respects the windshield is standard, its position is adjustable.—J. H. Tonneau Windshield Co., 1777 Broadway, New York.

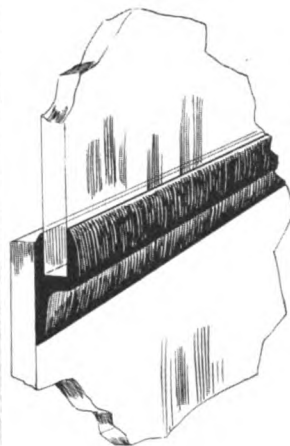
BECKER BROTHERS BRUSHES

The repairman can determine the order number of the starter or generator brush he desires by merely glancing at an illustrated two-page folder issued by Becker Bros., 25 N. Jefferson St., Chicago. There are several hundred brushes for all types of starting and lighting equipment illustrated. They are grouped according to make and are all numbered so that it is a simple matter to locate any given brush.



STANLEY SELF OILING SPRING

An oil saturated felt pad is imbedded in a cupped recess in the end of each spring leaf, thus supplying lubricant to the spring. The pad is oiled through an oil channel, running to the end of the spring leaf. The spring should be oiled three times a year.—Stanley Spring Co., Karpen Building, Chicago.



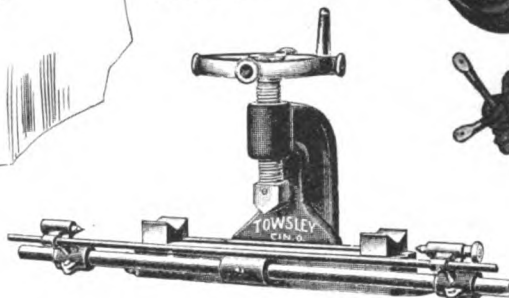
CONTINENTAL WEATHER-STRIP

To prevent rain entering between the two halves of the windshield. It is made in two styles for either the overlapping or butt joint. The former is illustrated.—Continental Rubber Works, Erie, Pa.



PITTSBURGH SPOTLIGHT

A spotlight with a rear view mirror. It can instantly be detached from the bracket and used as a trouble lamp, as it is provided with 10 ft. of cord.—Pittsburgh Lamp, Brass & Glass Co., Pittsburgh.



TOWSLEY STRAIGHTENING MACHINE

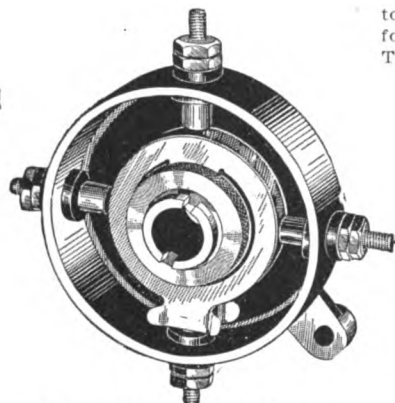
There is a pair of adjustable centers for determining how much the work is off center. The work is straightened by placing it on two V-blocks and applying pressure through the

screw. There is a rod on which to rest the hand while chalking the work when it is between centers. Work up to 2½ in. diameter and 48 in. long may be handled. The blocks are copper lined to prevent damage to finished work. The hand wheel has four cored openings in its rim to receive the ¾-in. steel bar for applying pressure.—J. T. Towsley Mfg. Co., Cincinnati.



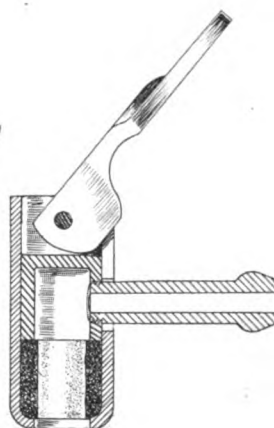
CONTINENTAL ENGINE STAND

A stand for all engines regardless of size or shape, readily adjustable. The engine may be placed in any position. Price \$30.—Continental Auto Parts Co., Knightstown, Ind.



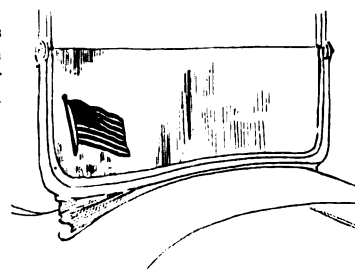
DEAN TIMER FOR FORDS

An improved timer in which contact is made by two spring knives which pass on either side of the steel terminal running to the individual coil. All parts are highly tempered tool steel.—Tisch Auto Supply Co., Grand Rapids.



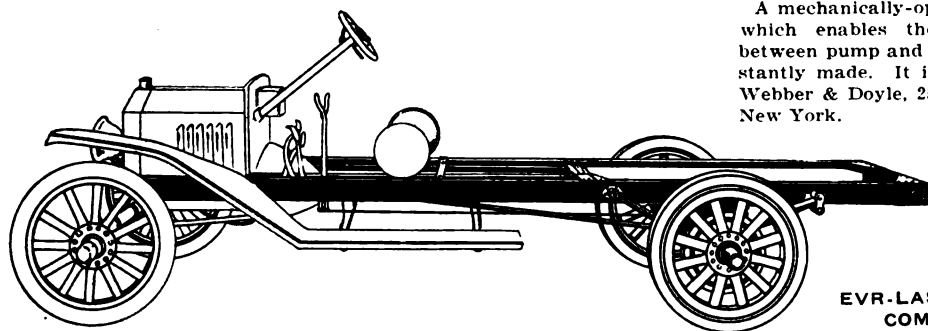
THUMLOCK PNEUMATIC COUPLING

A mechanically-operated pump which enables the connection between pump and tire to be instantly made. It is air tight.—Webber & Doyle, 256 Broadway, New York.



FENTON FLAG STICKERS

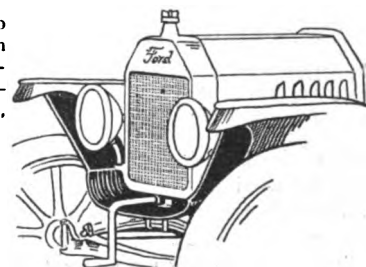
Made of tough paper in actual colors, size 6 x 8 in. They are transparent and will withstand wet weather. Price \$3 per 100; \$25 per 1,000; retail price 10 cents each. Small stickers, 100 per package, cost \$6 per 120 10-cent packages and \$10 per 200 10-cent packages.—Fenton Label Co., Ninth and Thompson Sts., Philadelphia.



UTILITY TRUCK ATTACHMENT

It makes a 1-ton truck out of a Ford. The unit consists of a substantial frame running the full length of the car and a complete rear end, including a Tor-

benson internal gear axle, heavier wheels and half-elliptic springs. Wheels are 32 x 3½ with solid tires, gear ratio is 6½ to 1, wheelbase is 125 in. Price \$345.—Robinson Motor Truck Co., Second Ave. and Seventh St., Minneapolis.



DEFENDER MUD DEFLECTOR

A splash guard which protects the lamps, radiator, hood and windshield and prevents the stoppage of the radiator with mud, and under these circumstances aids cooling. Price \$3.65.—Steel Products Co., Rice Lake, Wis.

EVR-LASTIN GEAR COMPOUND

A lubricant for gearboxes and differentials. It is designed to lubricate effectively and at the same time will not flow readily from the housing. Price, 5 lbs., \$1.25; 10 lbs., \$2.25; 25 lbs., \$5; 50 lbs., \$9; half barrel, 16 cents per lb.; bbls., 15 cents per lb.—Imperial Oil Co., St. Louis.

SCIENTIFIC CONSTRUCTION

GARAGES □□□ SHOWROOMS □□□ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets



other non-absorbent surface, nor over a surface which has been smoothed with neat cement.

Bay State Agatex is designed to change a soft, porous, dusting or pitting cement floor into a smooth, hard, wear-resisting and non-porous surface that will not have these defects. It fills the upper voids of the concrete, making the floor hard, durable and water-proof. It does not change the appearance of the floor appreciably because it is transparent. These products are manufactured by Wadsworth Howland & Co., Boston, Mass.

Front elevation and first and second floor plans of corner building, 78 x 130

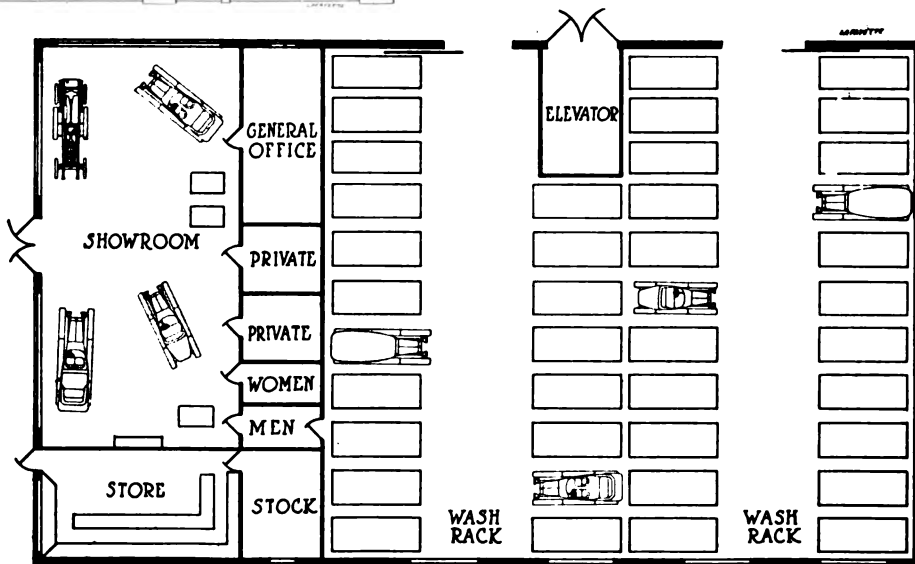
Two Story Garage, 78x130

Answer to Lafayette Garage, St. Louis, Mo.

The layout provides for a showroom, accessory store, shop and normal storage capacity for eighty-three cars. The plot is situated on a corner.

There are two private offices and a general office, the latter being adjacent to the side street in order to obtain better light and air.

The first floor may be used for quick service work, for storing new and used cars, and for repaired cars ready for delivery. The remainder of the space, and the second floor may be used for general garage storage.

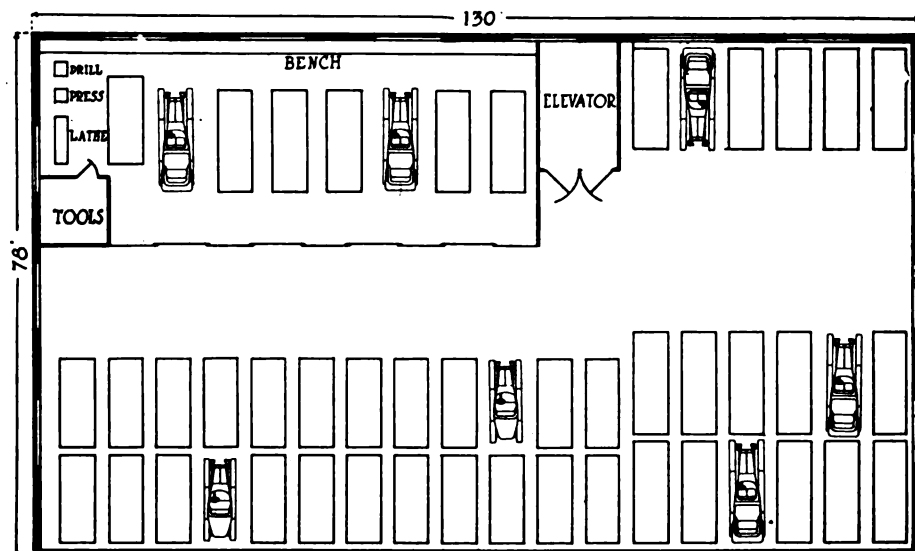


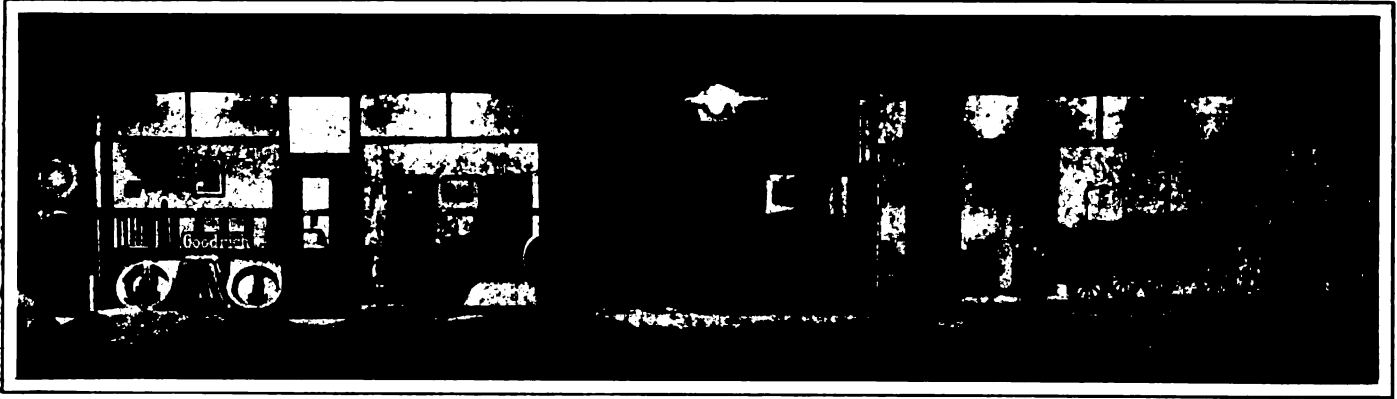
Cement Coating Improves Appearance and Excludes Moisture

Bay State brick and cement coating may be used as an interior or exterior finish on brick, cement, concrete, plaster and stucco surfaces, rendering them water-proof and beautifying them.

It is manufactured from a special white base carried in volatile oils which evaporate on application. It is made in various colors and dries dead flat.

It contains no lead, glue, caseine or water and resists the attacks of alkalies, acid fumes, gases, steam and extremes of temperature. The cost, it is said, is less than that of ordinary paint. It cannot be used on vitrified granolithic or any





A neat front and good lighting are notable features

Sprague Builds Garage According to Motor World Ideas

EDITOR Motor World: I have been taking Motor World for a number of years and have found it very helpful. For the past year it has been emphasizing just the departments in which I was most interested. During 1916 I followed your plans for new garages very carefully, as I was planning and building a garage, which I opened on Jan. 1. The size of garage is 66 x 122 ft. with McKeown Bros.' Lattis Truss roof, giving us a floor space clear of posts. Fowler-ville is a town of 1000, and many people advised me against a garage of this size,

but have been crowded for storage space already.

We find it convenient with a width of 66 ft. to have two rows of short cars on one side and one row of larger cars on the other side, which leaves a wide space in the center making it easy to back into places on either side.

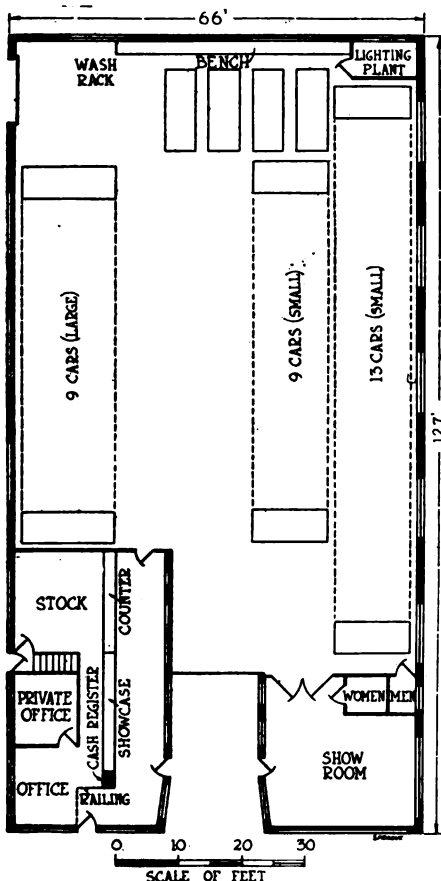
The cars in the shop are all faced toward the back where the bench is, the center places which are easy to reach being used for short jobs.

I like having the showroom away from the accessory store as we have it. I have, however, not tried the other way, and can see that it might be considered more convenient to go directly from one to the other. Crossing the driveway has worked out all right in our place, however. When a salesman is talking to a prospect in the showroom, it is not near enough to the accessory store to have his attention called to tire troubles and all

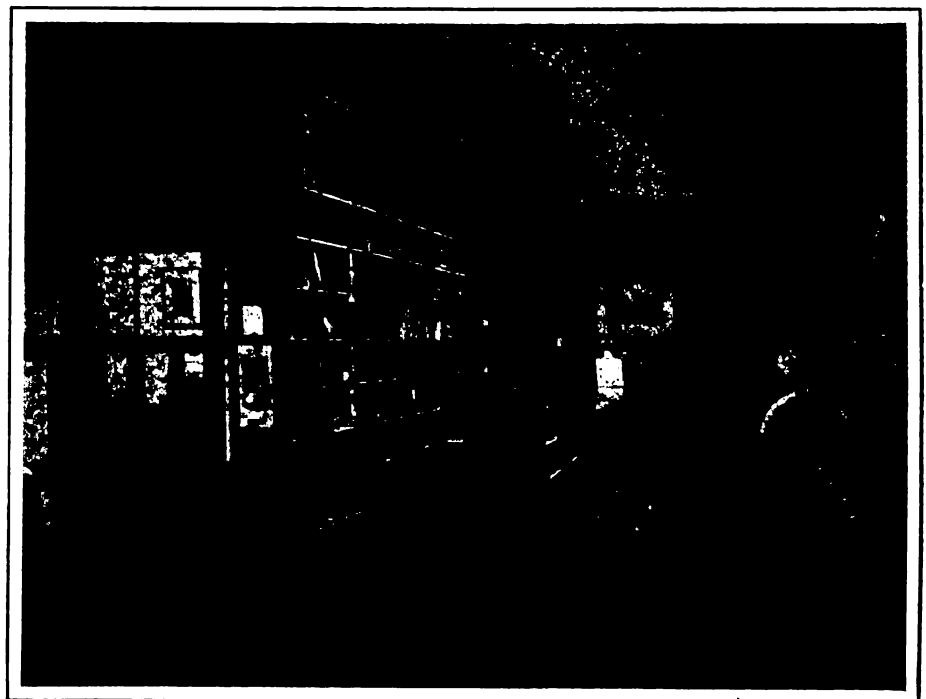
the other troubles that are handled in the office and accessory store side. I want storage customers and people whose cars are in for repair to pass through or wait in the accessory store where they will see that we have anything that they may want for their car. I want the man who is buying a car away from all that, with nothing to distract his attention.

As I am not on a corner the entrance in the center uses the garage space to much better advantage than an entrance to one side would. Everyone driving into the garage has a good view of the entire accessory store and showroom.

One thing which we have found very convenient in waiting on customers is this: Our gasoline pump is in front on the accessory store side. By the side of the gasoline pump, we have a crate on wheels which contains 30 qt. bottles of oil, some of each kind that we handle. We find that customers appreciate the fact that it is all measured out and that there is no delay if they call for oil. We sell more oil, as they see it when they are buying gasoline. The bottles are refilled in spare time.—Roy T. Sprague, Fowlerville, Mich.



Showroom and accessory store are separated in order to prevent regular customers from distracting attention of car prospects



Just inside front door looking toward rear. The private office is seen through the open door at the left



The Six-cylinder Limousine (Custom Built)

CLOSED CAR PROTECTION WITH TOURING CAR EFFICIENCY

PAR be it from us to dispense the open car, but there are many, and ever more urgent reasons why persons who have need for an enclosed car should keep it in service the year around—granted ability equal to the more exacting demands of summer use.

The Packard enclosed car gives perfect answer to the latter requirement and is in consequence more and more becoming the four seasons' conveyance of persons to whom open car touring is ungenial.

This year's range of Packards is greater than ever before though the active demand of the past month has reduced the assortment amazingly.

"Ask the Man who Owns One"

PACKARD MOTOR CAR COMPANY OF NEW YORK
BROADWAY AT SIXTY-FIRST STREET, NEW YORK CITY
New York Distribution Office: City Investing Building Arcade



The Imperial Limousine

WHY LIMIT THE USE OF THE CLOSED CAR TO WINTER?

IT is just as important to be clean in summer, just as important to be dry—in brief, just as important to have dust and weather protection when you are in it.

Of course your summer car must have activity—and closed cars in general are not active. The greater body weight holds them down.

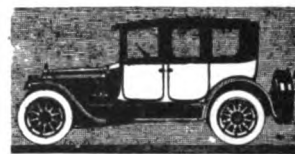
Not so the Packard. The drag of surplus weight has little chance to make itself felt against the overlapping impulses of the Twin-Six motor.

The Packard Imperial Limousine is quite as active as the ordinary touring car. There is no limit to its use except the owner's will.

Our line of enclosed bodies supplies every purpose and satisfies every taste.

"Ask the Man who Owns One"

PACKARD MOTOR CAR COMPANY OF NEW YORK
BROADWAY AT SIXTY-FIRST STREET, NEW YORK CITY
New York Distribution Office: City Investing Building Arcade



The Four-passenger Deauville

PREPARE FOR THAT GROWING DUST CLOUD OF THE SUMMER HIGHWAY

OXYGEN? Yes—as much as you wish, but only so much. Dust? None unless you are willing. Dampness? If you don't object. Chill? If you like its exhilaration.

In brief, one's ideal conditions are at all times possible to the owner of a Packard enclosed car. And with them, activity. The enclosed Packard of any type is as much of a touring wonder as it is an aesthetic delight.

"Ask the Man who Owns One"

PACKARD MOTOR CAR COMPANY OF NEW YORK
BROADWAY AT SIXTY-FIRST STREET, NEW YORK CITY
New York Distribution Office: City Investing Building Arcade



New Spring Models HUDSON COACHES

Six Types of Closed Cars Suitable for All Year Round Service

Hudson closed cars—the Limousine, Town Car, the Landau, Sedan and Cabriolet—are being sold more and more in all-year service.

There is a logical reason for this from the standpoint of both utility and distinction.

These new models are more easily distinguished from the old models. They demand dust coats, veils of the windshield. They demand dust coats, veils of the windshield. They demand dust coats, veils of the windshield.

It requires unusual skill to build bodies that stand up under such service. As the largest body of closed bodies in the world, we have learned to eliminate the faults in difficult for builders of experience to overcome.

The tremendous reserve power of the Hudson Super-Six motor carries the closed type with ease and liveliness of the lightest open models of powerful cars.

There is about these cars none of the sluggishness common to most cars of the closed type.

There is distinction in such a car. It is a Hudson Super-Six of either of those types you can ride with the greatest ease and to a comfort and luxury as you would enjoy in your own drawing room.

One is no longer content merely with conveyance that will take one from place to place. Comfort and exclusiveness also are demanded.

The satisfaction of riding in such ease and comfort is the highest example of the modern type in the motor car. The satisfaction of riding in such ease and comfort is the highest example of the modern type in the motor car.

The owner of a Hudson Super-Six is always in the midst of the modern.

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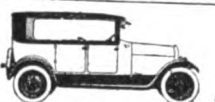


THE WORLD'S GREATEST MOTOR CAR VALUE



THE MAXWELL SEDAN

Convertible Summer and Winter Body



IMMEDIATE DELIVERY OF PERSONALLY DISTINCTIVE BODIES FOR YOUR OWN CHASSES.

Your last year's car looks old fashioned. But you're tired of its sturdy chassis.

Let us convert it into an up-to-date car. Our Springfield type bodies can be finished to suit your particular, custom taste. Any color or combination of colors you may favor. Any particular kind of upholstery will be furnished. Any arrangement of light-toilet cases—smoking sets—telephone; your own will individualize in your car body. In fact, all the refinements of the finest quality limousines.

Bodies all ready for finishing touches.

Packard Touring 2-35 Pierce Arrow 45 Overland Magazine 126 wheel base Cadillac Model 55, 132 wheel base

Marmon Model 34 Lincoln Model 38 and 48 Buick Model 38 and 48

Our bodies are good for all the year round—all weather. Perfect for every occasion.

The Cadillac Improved, Springfield type construction. Permanent Roof, gives the widest range of utility to your car.

It transforms from an open touring body for Summer use to a closed limousine, well able to protect you from driving storms.

For cool Summer nights it can become a Suburban or Berlin type.

It is the body—made for you. It reflects your individuality to the smallest detail.

Write for illustrated catalogue, or if in person, drop in and see the sample body in our showroom.

Eastman Auto Body Co., Inc. New York 1217 Broadway New York City



The ALL-YEAR Car

Here is the difference between the ALL-YEAR and the ALL-YEAR. The ALL-YEAR is a car that will last for years.

KISSELKAR

The Hundred Point Six

That features, made-to-order style—tailor-made appearance which New York's car-makers have never before—has been emphasized in the HUNDRED POINT SIX.

As it rolls up to New York's prominent hotels and business centers, its flowing lines, its harmonious proportions, its individual comforts and refinements add to the owner's prestige.

There is power untold in the mighty Kisselkar engine that makes the car a masterpiece of engineering.

Yes—it's a Touring Car—but it's also a Sedan

Coupe	Sedan
\$250	\$1450
\$385	\$1585



Equally serviceable summer or winter, this car combines luxury with convenience as no other single type of car can.

Side windows entirely disappear but are ready for instant reappearance whenever wind, moisture or cold make them desirable.

You may have either the three passenger car, which makes a perfect coupe, or the five passenger car which makes as perfect a sedan when the windows are up.

And you may have either body on either the Big Four or the Light Six chassis.

They are beautifully finished, lux-

urious cars, increasingly popular models in the most comprehensive line of cars ever built by any one producer.

Come in and let us show you the entire line—remarkable values made possible by the economies of our huge production.

With virtually every type and class of car to offer, we are in a peculiar position to advise you frankly from our wide experience which car is best suited to your needs and means and will give you the best satisfaction in the long run.

There is every reason for prompt action on your part if you are buying a car this spring.

WILLIS-VERLUND, INC.

BROADWAY AND 50TH ST., NEW YORK CITY

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Here's How to Advertise Summer Sedans

THE advertisements on this page were clipped during the last month from New York newspapers and they show how enclosed cars for summer use are being advertised. Dealers everywhere should favor advertising of this kind. The summer use of the enclosed car is this year's new, big idea and with the right amount of push it can be put over in a big way to the present and future profit of the whole trade.

Making the Owner a Repeater

If He Likes Your Car and You, He Is Likely to Come Back, So One Dealer Wages a Campaign of Satisfaction and Education

HOW to make the Buick owner a better Buick owner is a problem that is being well handled by the Northwest Buick Co., Seattle. Realizing that the owner may have trouble through his lack of knowledge, Sales Manager J. G. Fenton has placed a stripped chassis in the salesroom and has invited all owners to view it. Invitation is by a special form letter.

When the owner calls in response to the invitation he is taken over the chassis by a salesman, who uses the instruction book as the basis for his talk. The invitation and the beginning of the salesman's talk are given herewith.

The Invitation

In order that our owners may better understand the mechanism and care of the Buick car, we are going to have a Buick light six stripped chassis in our showroom APRIL 23 TO MAY 5.

This chassis will be so arranged that you can see all the working parts, and our instructor, Mr. Young, will be on the floor each afternoon and evening to explain its care and operation.

This will also give you an excellent opportunity to study the location of the different parts needing lubrication and how they are oiled. By "KNOWING YOUR BUICK BETTER," you can take better care of your car, and this in turn will mean more satisfactory service to you and eventually greater second-hand value.

It is a notable fact that the man who thoroughly understands the mechanism of his car seldom has any trouble with it. His very knowledge leads him to better care and more intelligent operation of his machine, and nearly always forestalls little accidents which are so exasperating to the average motorist.

We ask that all of our owners make a special effort to get in at least one day, at which time we will gladly explain the care a Buick should receive in order that an owner may get the greatest service at the least possible expense.

Trusting that you will take advantage of this opportunity "TO KNOW YOUR BUICK BETTER," we are,

Yours very truly,

NORTHWEST BUICK COMPANY.

The Talk

We have here the stripped chassis of the Buick Six—"forty-five"—1917 model, which is practically the same as the 1915 and 1916, with a few minor improvements.

Now the object of these instructions is to tell you in a simple way how to best care for your Buick in order that you will derive the greatest amount of pleasure at the least possible expense. Although none of us may be orators we believe that you will have no difficulty in understanding what we are about to tell you. If there are any questions you desire to ask, we want you to feel at perfect liberty to ask all the questions you wish, whether they may appear to be foolish or not.

We realize that some of you have not owned an automobile a great length of time, and therefore are not expected to know all there is to know about it. If you gain a few pointers from us or any knowledge that will help you to take better care of your car and decrease expenses, our purpose will have been accomplished.

First of all, merely knowing which pedal to press or which lever or button to pull is not enough for you to understand. Most important of all with the automobile, or any piece of fine machinery for that matter, is lubrication. We shall go into that more fully a little later.

We want you to know what takes place inside the transmission when you shift the gear lever forward or back.

We want you to know what takes place when you open or close the throttle or advance or retard the spark lever.

We want you to know how to crank your car by hand in case the starter should not work.

Practically everything that we are going to tell you is in your instruction book. Therefore we would urge you to study your instruction book carefully. We find oftentimes when a purchaser takes out his new car and after he learns how to shift the gears and drive fairly well, he forgets all about his book and thinks perhaps he knows practically all there is to know about the car. We also find that after a man has driven a car for a month or more, he can learn more from his instruction book than he could in the beginning, for the reason he is then more familiar with the various parts of his car and is in a better position to understand just what should be done.

We shall go through the instruction book, beginning on page nine with the operation of the car, under which come the various operations in running your automobile.

Then we shall proceed with the lubrication, which, as stated before, is the

most important of all, and we will take up the battery and starter, then the cleaning and looking after the car, after which we want you to ask all the questions you can think of.

We want you to know the difference between the valve in the head type of motor such as the Buick and the L and T types such as some of the other manufacturers use.

We want you to know that the glass on the dash does not indicate the amount of motor oil in the engine, but simply shows that the oil is circulating.

We want you to know also that if you give your Buick automobile the proper care, you can drive it twenty-five or even forty thousand miles without renewing any parts, barring accidents and actual defects.

We want you to know how to adjust your brakes and also know that if one brake is tighter than the other it wears your tires unduly and will cost you money. We also want you to know that if one wheel is out of alignment it wears your tires, front or rear. You might possibly wear a tire out in one or two hundred miles if a wheel is out of alignment.

Many people do not know that their car will ride much easier if they keep their springs graphited and well lubricated. It is of the utmost importance that you go over the car occasionally and keep all the bolts and nuts thoroughly tightened up; otherwise it is a good deal like the old saying about the horseshoe nail, which goes: For the want of a nail a shoe is lost; for the want of a shoe the horse was lost; for the want of a horse the rider was lost; for the want of a rider the general was lost; for the want of a general the battle was lost.

Right here we want to say a word about the battery and electrical system. We would advise you to read and heed your instruction book on this subject, as the battery manufacturers today claim the battery requires more care than all other electrical appliances and probably receives the least.

When a battery is hungry if it continues to go hungry it is sure to be damaged. A battery is simply a reservoir into which is stored energy to be drawn off and used when needed; for instance, for the electric lights and for the starter. It is important that the electrical terminals or nuts on the battery be always kept clean and tight.

(Here the lecturer takes up the discussion of the instruction book.)

The RETAIL NEWS

EAST

Shaw Motor Co., 601 Highland Building, Pittsburgh, has been appointed distributor for the Diamond T truck.

Grant Sales Co. has moved its salesroom from Shady Avenue, Pittsburgh, to 6010 Center Avenue.

Stewart-Warner Service Station, Pittsburgh, Pa., will remove on June 1 to its new location at 5942 Baum Boulevard.

Robbins Electric Co., Pittsburgh, will move into its new Willard storage battery service station at Baum Boulevard and Powhattan Street about June 1.

Jones-Busch Motor Co., Abbott dealer for the Pittsburgh territory, now occupies its remodeled salesroom at 5904 Penn Avenue.

Auto Parts Repair Co., Springfield, Mass., has taken over the Ford agency.

L. R. Mack, Albany, N. Y., has purchased the stock and business of the Greene & Warnick Co. of Amsterdam and will continue the business.

Irving Knickerbocker Winne, Albany, N. Y., manager of the used-car department of L. R. Mack, has resigned and enlisted in the army. George Alderman succeeds him.

Allen & Arnink, Albany, N. Y., have opened a new 100-car garage at 71 Hudson Avenue.

Ashwell Service Station, 341 Trumbull Street, Hartford, Conn., has taken on the service for the Auto-Lite system. The firm recently added to its floor space by erecting a four-story addition, the second floor of which is given over to the electrical-device test department.

Elmer Automobile Co., Hartford, Conn., has taken on the Gray & Davis electric lighting and starting systems for Fords in Hartford County.

New York Auto Tire Exchange has opened a retail tire shop at 281 Main Street, Hartford, Conn. It also does business in a similar way in Springfield, Mass.

MIDDLE WEST

Mio Garage, Mio, Mich., has been opened with a full line of motor supplies and accessories.

Flaggett Trabbic, Monroe, Mich., is building a garage.

Edward Towns, Port Austin, Mich., has opened a garage.

Brown-Feyes Co., Detroit, located in the Grindley Arcade, on Woodward near Forest Avenue, has obtained the Detroit distributing control for the Pathfinder car, from Indianapolis.

Hooper Motor Co., Iron Mountain, Mich., will conduct a retail agency for all models of Fords.

Reliable Tire Repair Shop, Pontiac, Mich., has been opened.

E. H. McDonald, Mt. Clemens, Mich., has opened a garage.

Universal Car & Service Co., Grand Rapids, Mich., has been organized.

Automobile Supply Co., Detroit, has moved to 218 Jefferson Avenue, where it will be able to increase its stock of tires and automobile accessories.

Thurby & McGrath, Milan, Mich., have taken over the building and business of the Keller Garage.

Albert Noret, Hart, Mich., will open a garage with the agency for Overland.

Earl Dennis, Petoskey, Mich., has the agency for Republic trucks.

William F. Miller, Alma, Wis., will build a 40 x 48 addition to his garage and repairshop and will enlarge his equipment.

Auto Service Co., Two Rivers, Wis., has completed work on its new garage and repairshop, erected at a cost of \$7,500. Herman Diskowski, Manitowoc, Wis., has been engaged as mechanical superintendent.

F. E. Reindl, Antigo, Wis., has started work on a public garage and repairshop, one story, 40 x 90, of fireproof construction.

Charles Hoeffler, 909 Pabst Building, Milwaukee, has awarded contracts for the erection of a one-story steel and concrete garage, 50 x 100, at 260 Fifth Street.

Onalaska (Wis.) Motor Co., Milwaukee, Overland dealer, is erecting a new garage and repairshop.

Stahl Implement & Seed Co., Sheboygan, Wis., has been appointed local distributor of Empire tires by the Badger Belting & Rubber Co., Milwaukee, state distributor.

W. H. Spencer, New Richmond, Wis., is establishing a garage and repairshop in the former McGraw machineshop building.

Farwell Garage Co., 400 Farwell Avenue, Milwaukee, has been appointed local dealer in Saxon Six cars by the Saxon-Reynolds Co., Milwaukee, state distributor of the Saxon.

Kirnberger Bros., Sanborn, Wis., are building a new public garage and repairshop, 40 x 75, which also will be used as headquarters of their livery business.

John Larscheidt, DePere, Wis., has opened a garage and service station at Little Chute, Wis., in the building formerly occupied by P. J. Janssen.

Union Taxicab Co., Racine, Wis., has been organized by J. W. Starsky, L. Smith, W. Mildrum and H. C. Smith to operate a taxicab line and a repairshop business.

Western Fixture Co., Milwaukee, Wis., which operates one of the leading welding and cutting shops specializing in motor-car work in Wisconsin, has moved from 556 East Water Street to its new and modern machineshop and manufacturing plant at Humboldt and Concordia Avenues, Milwaukee. The factory will enlarge its production of display fixtures, racks, stands, etc. Felix Biegelaar is general manager.

Loomis-Weinkle Motor Sales Co., Portage, Wis., Dodge Bros. dealers, have taken occupancy of the new garage and service station, two stories high, affording 15,000 sq. ft. of floorspace.

Langstadt-Meyer Construction & Electric Co., Appleton, Wis., which recently established branches in a number of important centers in the Fox River valley and specializes in service on electric equipment of motor cars, is erecting a service building at State and Waugoo Streets, Oshkosh, Wis. It will be 46 x 133 x 122 in size, and will be devoted principally as an electric service plant for motor vehicles.

R. F. Houston, formerly with the Kelly-Springfield Tire Co., and R. L. and M. H. Hayes of the Hayes Carriage Co., have organized the Hayes-Houston Tire Co., with headquarters at 207 East Town Street, Columbus, Ohio. This firm will act as distributor in Central Ohio for Victor Springfield tires and tubes.

M. E. Bidlack, Columbus, Ohio, formerly in the automobile business, has formed the Bidlack Tire & Specialty Co., at 73 South Fourth Street. He is making a specialty of the sale of the Fisher Rim Grip Sub-Casing.

Phil Vogel, Columbus, Ohio, district manager of the Cole Sales Co., will open a temporary salesroom at 139 East Long Street, just west of Fourth.

SOUTH

B. F. Goodrich Tire Co. branch at Atlanta, Ga., will shortly remove into a specially constructed building at 267-69 Peachtree Street, where 30,000 ft. of space will be available.

Quick Tire Service, Inc., Atlanta, Ga., has installed a fleet of service cars.

E. L. Taylor & Co., Richmond, Va., have opened a new tire and accessory store, selling the U. S. and Marathon lines, following the recent fire. The entire former stock was turned over to the insurance companies, which conducted a sale of the salvage.

Richard B. Hager, Nashville, Tenn., has been appointed manager of the B. F. Goodrich Co. branch.

Greenville Storage Battery Co., Greenville, S. C., has been appointed distributor for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

O. A. Blackwelder, Concord, N. C., has been appointed as service station for the Philadelphia Diamond Grid Battery, manufactured by the Philadelphia Storage Battery Co.

SOUTHWEST

Livingston Auto Sales Co., Livingston, Tex., is erecting a garage, to be managed by W. H. Stewart.

Regan Dichard, Austin, Tex., has opened a repairshop.

J. Mott Douglass, Kennett, Mo., has opened the Owl Garage.

Missouri Tractor Sales Co., St. Louis, Mo., has opened salesroom for the distribution in Missouri of the Stude Make-a-Tractor.

E. H. Forrest, Cole Camp, Mo., has opened a garage.

Oakland Motor Sales Co., Cape Girardeau, Mo., is a new automobile concern just opening for business here.

C. O. Richardson, Slater, Mo., has taken charge of the Rock Barn Garage.

William Bateman, Thayer, Mo., will open a garage.

Cowgill Garage, Cowgill, Mo., will be sold at a trustee's sale.

Ellsworth Rhoades, Lee's Summit, Mo., has bought an interest in the Sterling Garage.

J. W. Hall, Thayer, Mo., will open a garage.

W. M. Bolander, Wynnewood, Okla., has bought an interest in the City Garage.

Bearden - Wheatley - Jones Co., Okemah, Okla., will open a salesroom and garage as soon as its new building is completed.

Keny Davis and Hiram Williams, Hollis, Okla., have purchased the City Garage from Perry Hazelwood.

Frank McKay, Cleveland, Okla., has purchased the Cleveland Garage.

Baird Motor Co., Wynnewood, Okla., has purchased the Spencer Garage and will make improvements.

W. C. Catron, Blackwell, Okla., will open a garage.

Church Motor Co., Woodward, Okla., will soon be in its new garage.

J. T. Loyd, Pine Bluff, Ark., has purchased the Cone Garage.

Louis DeStowinski, Ft. Scott, Kan., is erecting a garage.

Hershey & Chatelle, Smith Center, Kan., have purchased the Oakland Garage.

C. F. Timken, Larned, Kan., is remodeling a building on Main Street, to be used as a garage and repair shop.

Smith's Garage, Ottawa, Kan., has been recently opened.

Rayl & Son, Kingman, Kan., have leased a garage now under construction.

Potter Garage, Malta Bend, Mo., will soon be opened.

Rock Barn Garage, Slater, Mo., has been sold to C. O. Richardson.

Harry Martin, Ava, Mo., will open a garage about June 1.

Metts Garage, Sedalia, Mo., has been sold to Emmett Trader.

Sam Boles, Mexico, Mo., has opened a garage.

Earnest Sharp, Clarkton, Mo., has purchased the McMullen Garage.

Harman Farm Agency, Valley Falls, Kan., has opened a salesroom and garage.

Joseph and Albert Petrezike, Lorraine, Kan., will open a garage.

Meridan Garage, Belleville, Kan., is now open.

Travelute & Son, Marysville, Kan., are building a garage.

H. L. Cline, Wamego, Kan., has purchased the Independent Garage.

Johnson Bros., Wichita, Kan., will open a distributing station for Firestone tires as soon as their new building is completed.

Auto Supply Co., Dodge City, Kan., is open.

Oklahoma Auto Supply Co., Ardmore, Okla., will open a garage.

Hurkey & Johnson, Tulsa, Okla., are erecting a \$17,000 brick and steel garage.

R. P. Carson, Colgate, Okla., is building a garage.

Wells & Puckett, Purcell, Okla., are building a garage, 50 x 60.

Marsh Motor Supply Co., Muskogee, Okla., are in new quarters.

T. G. Williams, Nowata, Okla., on July 1 will occupy a garage now under construction.

J. McAlester, Schoolton, Okla., has opened a garage.

H. O. Rice and Vinge Bros., Clyde Park, Mont., will build a garage to cost \$12,500.

Edmond Roup, Watson, Mo., will have charge of the McNeal Mercantile Co.'s Garage.

Speechley-Beamon-Smith Garage will soon be opened.

H. T. Ferguson, Rosendale, Mo., is erecting a garage.

Glenn H. Morris, Alanthus Grove, Mo., has opened a garage and repair shop.

S. A. Tillman, Houston, Mo., has opened a garage and repair shop.

Parish Motor Co., Silkeston, Mo., is building an addition to its garage.

Wichita Falls Motor Co., Houston, Tex., is in its new offices.

Electric Vehicle & Battery Co., Dallas, Tex., is erecting a building for a salesroom and accessory depot.

Dalhart Auto Machine Co., Dalhart, Tex., is building a garage.

W. E. Poorman, Cherokee, Okla., has opened a repairshop and will also handle accessories.

R. L. Crockett, McKinney, Tex., has opened a garage and salesroom.

E. R. York's Garage, Edna, Tex., is building a garage.

Kelly-Springfield Tire Co., Dallas, Tex., is erecting a building to cost approximately \$25,000.

M. Wilder, Council Grove, Kan., will open a garage June 1.

Topeka Auto Tire Co., Topeka, Kan., will soon move into larger quarters.

Charles Lightfoot, Pawnee Rock, Kan., has leased a garage now under construction.

J. F. Newland, Beloit, Kan., has purchased the South Street Garage from C. O. Baird.

Wentworth & Ellis, Hays, Kan., have purchased the repair department of the Bemis Garage.

Russell Graham, Burlington, Kan., has sold his garage.

Paige and Saxon Service Station, Okmulgee, Okla., has opened a garage.

Cooper Garage, Ardmore, Okla., is ready for business.

Griffith & Co., Paola, Kan., are remodeling their building, the new part to be used for a salesroom and repairshop.

Howard and Fred Cole, Alve, Okla., have opened a garage.

Sample Hart Motor Co., Omaha, Neb., has opened a salesroom and repairshop.

Harry Jeffries, Winston, Mo., has opened a garage.

T. E. Hawkins, Shelby, Mo., is planning the erection of a garage.

A. L. Houghton, Braymer, Mo., has bought out the interest of his partner in the Kingston Garage.

Gausman & Lauderdale, Wellington, Mo., have opened a garage and salesroom.

D. S. B. Motor Co., St. Joseph, Mo., has moved into new quarters, where it will have a garage.

D. N. Danielson, Holden, Mo., will open a garage.

Central Garage and Repairshop, Centralia, Mo., is now open.

Enos Garage, Rossville, Kan., will open June 1, under new management.

Auto Supply Co., Dodge City, Kan., has opened for business and will carry a complete line of accessories and garage equipment.

Klamm Garage, Detroit, Kan., is open.

C. R. Smith, Ottawa, Kan., has opened a garage.

Broadway Garage, Valley Falls, Kan., is constructing a building.

Thompson & Son, Goodland, Kan., have purchased the interest of Harley Hogeboom in the Goodland Garage.

Goodin Motor & Truck Co., Wichita, Kan., has completed improvements in its plant.

Roger Pishny, Waterville, Kan., has completed an addition to his garage and is now able to do repair work.

Jesse Smith, Smith Center, Kan., has bought the interest of Dr. Wheatcroft in the Smith Co. Garage.

L. J. Frederickson Tire Co., Hutchinson, Kan., has opened a branch store and will handle rubber goods exclusively.

J. A. Needham, Aldrich, Mo., has purchased the H. W. Stiles Garage.

Jefferson Highway Garage, Butler, Mo., will be ready for business June 1.

NORTHWEST

Paul Schmidt, Watertown, S. D., will open a repairshop in the Bennett building.

W. N. Dick, St. Michael, Minn., is erecting a brick garage, 44 x 100.

Peter Happ, Edgeley, N. D., is building a garage, 32 x 40.

Motor Inn, Alexandria, Minn., is building a 40-ft. addition.

Nels Ahlness, Rhame, N. D., is building a 24 x 50 addition to his garage.

T. M. Arlein and Oscar Hagen, Arnegard, N. D., are building a garage, 30 x 60.

H. H. Jamison, Canova, S. D., bought the George Jamison Garage.

J. L. Engler, Oldham, S. D., bought the F. D. Blank interest in the Oldham Auto Co. garage.

Pioneer Auto Co., Poplar, Mont., will build a brick garage, two stories, 50 x 125.

E. B. Robinson, Floodwood, Minn., will build a 48 x 80 garage at Sixth and Pine Streets.

J. M. Olson, Bird Island, Minn., is rebuilding his warehouse into a garage.

Gleason & Brewster, Canton, S. D., are building a garage.

M. Natwick, Fargo, N. D., has bought an interest in the garage firm of Burns & Zimmerman.

Grosman Motor Co., Glasgow, Mont., is remodeling its garage.

McKinney-Fuller Motor Co., Glasgow, Mont., will build a garage at Second Avenue S. and Third Street.

George E. Hoch, Elkton, S. D., is building an addition to his garage.

Canova Implement Co., Canova, S. D., is erecting a garage, 75 x 100.

Adolphson-Potter Co., Springfield, Minn., has begun building a garage.

Will Frank and Frank Lundenia, Browerville, Minn., have rented the Browerville Garage.

A. D. LaVictoire, Crosby, Minn., will open a garage. He has closed his business at Deerwood, Minn.

Chester Holm, Danvers, Minn., has rented the Danvers Garage.

H. A. Borstad, Detroit, Minn., has bought the Baker Bros. Auto Co. Garage.

E. M. Covington, Park City, Mont., sold his garage interests to W. A. Sullivan.

Phillip Schmidt, White Lake, S. D., has opened a repair shop in the Sheldon Garage.

White Sales Co., Duluth, Minn., has moved into larger quarters at 33 West First Street.

The territory is northern Minnesota, Michigan and Wisconsin. Frank Bonham and H. Carver are in charge of the accessory and repair departments.

George E. Horn, Phillips, Neb., is erecting a garage, 38 x 70 ft.

Nash Sales Co., Omaha, Neb., has occupied permanent quarters in the annex to the John Deere Plow Co., building, Tenth and Howard Streets. It will handle Jeffery pleasure cars and trucks.

F. R. Linderman, Central City, Neb., has completed a new salesroom and will handle the Maxwell, Crow, Elkhart and Stephens Six. W. A. Blake, with whom he was previously associated in the firm of Linderman & Blake, has sold the garage business to Lee & McCullough, and will have charge of their repair department.

B. H. Johns, Glidden, Ia., has sold the Johns Auto Co., Webb, Ia., and has bought the Potter Garage at Glidden.

Miller & Carlson, Axtell, Neb., have opened a garage.

Charles S. Stone, Elmwood, Neb., has bought the Cash Garage from A. L. Cash.

Ira Napier, Ewing, Neb., has bought Eldred Skidmore's interest in the auto livery business, and will conduct it alone.

J. D. Bishop and H. W. Bedell, Peru, Neb., have bought the Ralsdell Garage.

William Zeleny, Staplehurst, Neb., has bought the garage of H. C. Spegger.

William Kretter Co., Herrick, S. D., has opened a new Ford garage.

Harry Skow, Beatrice, Neb., has opened a repairshop.

Anton Stransky, Dwight, Neb., is remodeling his dance hall into a garage, which he and his sons will operate.

E. J. Furman, Hay Springs, Neb., has sold his garage to George Lyman, White Clay, Neb.

John Havel, Red Cloud, Neb., has sold his interest in the firm of Havel & Buzzard to Henry Karsting, Lawrence, Neb.

Jess Salmond, Stockham, Neb., has rented the Fuehrer garage and will handle the Ford.

Daniel Stevens, David City, Neb., has opened a tire repairing and vulcanizing shop.

Hupmobile Co. of Nebraska and the McShane Motor Co., Omaha, Neb., have moved into the building erected for them at Twenty-sixth and Farnam Streets.

National Auto Accessories Co., Omaha, Neb., has opened a retail department at 219 South Nineteenth Street.

D. F. Crow, Omaha, Neb., formerly with the Goodyear Tire & Rubber Co., has bought the Zweibel Bros. tire and repair shop. He will call it the Tire Shop, and will handle Goodyear and Firestone tires.

Powell Supply Co., Omaha, Neb., has opened a service station in the two-story brick building at the rear of its Farnam Street store.

McNulty & Dafee Co., Inc., organized to handle the Smith Form-a-Truck in this territory, with offices also at Duluth, has opened headquarters at 1526 Hennepin Avenue, Minneapolis, Minn., formerly Jackson headquarters.

Thomas LeFever, Three Forks, Mont., will build a two-story garage, 50 x 140.

John Enneking, Freeport, Minn., will open an Overland garage.

Cuyuna Range Hardware Co., Deerwood, Minn., has opened a repairshop.

Louis Larsen, Choteau, Mont., has bought the Choteau Garage from Bateman Bros.

Yellowstone Trail Garage, Lemmon, S. D., built an addition, 30 x 40.

Northwestern Auto Supply Co., Great Falls, Mont., will occupy a 44 x 150-ft. concrete and brick two-story building at 213 Second Avenue, now under construction. The structure will cost \$25,000.

COAST

P. F. Hill, Long Beach, Cal., has moved the Saxon Garage to 125 East Fourth Street.

Dan E. Whitman, Oakland, Cal., started work on a garage building which is to house the Palge agency.

Charles H. Burman, Oakland, Cal., has completed arrangements for a handsome garage structure on upper Broadway. The building will be ready within sixty days and is to be one of the most complete garage buildings in the city of Oakland.

Seely Auto Sales Co., Oakland, Cal., has commenced work on a building on Broadway which will house the service station and accessory and automobile business of the concern.

B. L. Bissell, Modesto, Cal., has opened a tire shop in connection with the Hanna Auto Supply Co., corner 10th and J Streets.

Ritchie-Linsley Corp., Santa Barbara, Cal., has opened an automobile establishment at 418 State Street, and has secured the agency for the Reo car.

Bertram Motor Sales Co., Reno, Nev., has taken over the Riverside Garage on Court Street.

Walter M. Murphy Motor Sales Co., Pasadena, Cal., has moved into its new building at 285 West Colorado Street. The garage has a frontage of 75 ft. on West Colorado Street. The entire front of the building is of glass.

Kay & Burbank, Pasadena, Cal., have been appointed official service station for Bosch magnetos, as well as the agency for the National and Oakland.

Standard Tire Co., Los Angeles, Cal., with A. M. B. Friedman as manager, has opened at 324 West Pico Street.

Los Molinos Garage, Los Molinos, Cal., has been appointed Tehama County distributor of the Chevrolet line.

Mrs. L. A. Gonzales, Mendocino, Cal., has secured the agency for the Chevrolet and will operate a garage business.

Walter W. Cameron has opened Maxwell salesrooms and service station at 306 West Seventh Street, Hanford, Cal.

R. C. Young has added an accessory department to the Tourist Garage, Tulare, Cal.

Buckner & Shellabarger, owners of the Hanford Garage, Hanford, Cal., have dissolved partnership. Buckner becomes sole owner of the garage and Shellabarger assumes the Willard agency.

James W. Stokes, Corcoran, Cal., has installed a machine shop in his garage.

A. F. Patnott, of Patnott's Garage, Hanford, Cal., has closed for the Cadillac and Oakland.

Otto W. Lloyd, formerly foreman at the Ford Garage, has opened a repairshop and used-car salesroom at Corcoran, Cal.

Luethke & Ray have purchased the Central Garage, 244 South J Street, Tulare, Cal.

W. M. Erwin, proprietor of the Ford Garage, Corcoran, Cal., has secured the Oldsmobile agency.

Lighter & Barker, Lemoore, Cal., have secured the Willard storage-battery agency.

Paul C. Winans has assumed the management of the Valley Garage, Lemoore, Cal.

N. F. Vulcanizing Works, 227 West Seventh Street, Hanford, Cal., has leased a 25-ft. frontage store adjoining the plant, which will be used exclusively as a tire display and tire salesroom.

Sam Snead has purchased the Case Garage at 1440 Eye Street, Fresno, and renamed it Sam Snead's Service Garage. Application for A.A.A. representation has been made. Snead also handles the Moreland truck in the San Joaquin Valley.

Ford Motor Co. factory branch at Fresno, Cal., has been discontinued and E. B. Anderson, the ex-manager of the branch, has been appointed local Ford agent. Salesrooms and service station will continue at 1501 I Street.

Smith-Webb Auto Supply Co., 1302 Eye Street, Fresno, Cal., has secured the Savage tire agency.

Frank W. Hansen has erected a modern garage building at 2047 Merced Street, Fresno, Cal.

E. Iversen & Co., automobile supply dealers at Fresno, Cal., have moved to larger quarters at 1209 Van Ness Avenue.

Palge Motor Co. of Fresno has opened a Palge salesroom and service station at 1416 Eye Street, Fresno, Cal.

Clarence Christensen has purchased the Van Ness Garage, 835 Van Ness Avenue, Fresno, Cal.

J. J. Jacobs Motor Co. is the new name of the business formerly conducted by Bridge & Jacobs, Studebaker distributors, 1806 and 1904 M Street, Sacramento, Cal. J. J. Jacobs has purchased the interest of R. C. Bridge.

Standard Tire Co. has been added to the list of accessory dealers in Los Angeles. Headquarters are at 324 West Pico Street.

Prestolite Co., Los Angeles, has removed to a new building located at Fifteenth and Hope Streets.

Cleveland Standard Tire & Rubber Co. has opened a store at Pico and Hill Streets, Los Angeles.

Montesano Auto Co., Montesano, Wash., will build an addition to its garage, 50 x 120, adjoining its present structure. It will be of concrete and will provide 12,000 sq. ft. of floor space.

Wyman & Hayes, Mount Vernon, Wash., Overland dealers, are constructing a 2-story concrete garage.

Broadway Garage, 360-364 East Twenty-fourth Street, Portland, owned by the Oregon Garage Co., A. J. Parrott, Leland James and W. D. Miles, proprietors, was recently swept by fire, with a loss of \$11,000. Thirty-two autos in storage were damaged, the damage being confined to the tires and upholstery of the cars. The garage will be immediately repaired.

Henry T. Weaver and Eldon Priest, Enterprise, Ore., are constructing a brick and concrete garage, 55 x 120, one-story.

Central Washington Oakland Car Co., North Yakima, Wash., will let a contract for 100 x 130 building, to be occupied as office, show rooms and garage. Building is to be ready about July 15.

Oliver Hardware Co., Centralia, Wash., distributor for Chevrolet line, has recently moved to its new showrooms and service station. Service station has modern conveniences, including wash rack and battery department.

Covey Motor Car Co., Portland, Ore., has appointed W. L. Powell in charge of the newly created tire department, which will distribute the Kelly-Springfield tires retail.

L. O. Johnson and C. O. Simon, Portland, Ore., have established a service station at 391 Oak Street under the name of Electrical Service Auto Co., to handle Westinghouse and Connecticut ignition systems.

Edward C. Leighton, Seattle, who invented and placed on the market the Leighton distillate vaporizer, has sold his electrical supply business, and incorporated the Leighton Distillate Vaporizer Co., to manufacture his device, at a plant under construction at 2706 First Avenue, Seattle.

F. H. Bardshar, Seattle, has added the Liberty Six to his line.

Tyre Shop, Bellingham, Wash., home of the Savidge tires, has moved from 1206 Elk Street to 1220 Elk Street, where the company has a vulcanizing branch and a curb gasoline supply station.

M. S. Brigham Motor Co., Seattle, which recently took over representation of the Smith Form-A-Truck for western Washington, announces the following appointments: F. M. Randall, state supervisor; H. S. G. McCurdy, V. A. Marco, L. M. Whittington and C. H. Perry in charge of the four districts of western Washington; F. U. Bliss, former sales manager for the Hendricks truck, will have charge of the retail sales organization for Seattle.

Herman J. Possi Co., Spokane, distributor for Scripps-Booth cars, has leased the John Doran Company's garage at 1122 Sprague Avenue. The Doran company will move to its new garage on Third Avenue about June 15.

Bowen Auto Co., Tonasket, Wash., plans the establishment of a second garage at Oroville, Wash., in charge of B. C. Bates. An auto accessories department will be operated.

Baker Garage, Baker, Ore., has purchased a site and will erect a modern garage building during the summer.

Auto Radiator & Fender Works, Tacoma, Wash., I. L. Hirsch, proprietor, is located in its new building on St. Helens Avenue.

Kennedy-Schnack Co., Tacoma, Wash., has recently been incorporated by S. E. Kennedy and R. W. Schnack and has established headquarters at 767-69 Broadway, where a retail business will be done in all kinds of automobile accessories and tires. Mr. Kennedy was formerly store manager for Little & Kennedy, Tacoma; and Mr. Schnack was manager for Chanslor & Lyon, accessory dealers.

James Croston, Tacoma, Wash., has opened a modern repairshop at 1211 A Street. He was formerly part owner of the Tacoma Avenue Auto Exchange. In new quarters, Croston will do general repair work, specializing in valve-in-head motors and Delco systems.

W. M. Thompson Auto Supply Co., Tacoma, Wash., has added a repair department.

American Auto Co., Tacoma, Wash., has enlarged its used-car department and added several salesmen to that branch.

Pacific Sales Co., Tacoma, Wash., Don Modrahl, owner, has been appointed State distributor for the G. L. W. spring oilers.

H. E. McEldowney, owner of the McEldowney Garage, Tacoma, has recently enlarged his quarters, adding floor space and providing a 50-ft. frontage.

George W. Miller, Tacoma, Wash., has purchased the interest of his partner, James Croston, in the Tacoma Avenue Auto Exchange, and will conduct the business alone.

St. John & Titus, Centralia, Wash., will shortly begin work on an addition to their garage, to be used exclusively for Ford cars. A repairshop will be installed.

Centralia Rubber Co., Centralia, Wash., recently incorporated by O. A. Knapp and O. Johnson, has established a vulcanizing and general tire-repair establishment.

Stephoe Motor Co., Steptoe, Wash., has been incorporated for \$10,000 by D. W. Smith, Kolman Belko and W. R. Rallsback, to handle the Crow-Elkhart 35. The company will construct a 50 x 80 garage, two stories high.

Colfax Garage, Colfax, Wash., has added the Kissel-Kar to its line.

Editorial Observation

Commercializing Patriotism

COMPANIES that sell cars, real estate and various commodities have offered to accept Liberty Bonds in payment from customers, accepting these bonds at more than par. Two motor car companies are offering above-par prices—one \$102 and the other \$110—for these \$100 bonds.

This is a combination of advertising and what is stated to be an effort to help in placing the Liberty Loan, but in its last analysis it is not greatly aiding the country.

In the first place, a desire for publicity undoubtedly actuates those who bring the Liberty Loan into their advertising in this way—and *that is commercializing patriotism, which is sacrilege.*

Furthermore, unless the automobile companies keep these bonds in their safe deposit vaults until maturity no assistance is being rendered. The bonds should be bought from present and future savings and must NOT be transformed into currency. There is no shortage of currency.

The public has not taken these bonds as rapidly as it should at the \$50 and \$100 par prices, and these offers of acceptance at above par, theoretically at least, tend to slow down the sale of the issue. If a manufacturer offers to pay more than par he is in substance admitting that these emergency war bonds

are worth less than par, and for the following reason:

If the manufacturer believed the bonds to be worth more than par he would buy them in quantities from the government at par and not from his customers at above par. The only reason he can have, theoretically, for giving more than par for them when taking them from a customer is that the customer does not think them worth \$100 and wants to get rid of them.

There is also a kick-back at the manufacturer, which is this: Giving more than par amounts to price-cutting, and unless the manufacturer has difficulty selling his car at list why should he throw in extra inducements?

The Liberty Loan should not be made an advertising asset. It is the same as using the flag for advertising purposes—which is forbidden by law.

If the manufacturer intends to keep the bonds until maturity the situation is modified; but if he does that whence comes the funds to finance his business? If he gets all his money tied up in bonds how can he operate? And if he doesn't keep the bonds he buys he hasn't helped.

The Liberty Loan is a sacred thing in a sacred cause. It should not be junked from pillar to post on the advertising cart of commercialism.

Will He Go Back?

A BUSINESS man in Detroit, hurrying to his store, found his spark weak. The generator needed overhauling and cleaning, and he turned into the first convenient garage. It happened to be the ——— Garage. The completion of the job was promised within six hours. The motorist returned to the garage at the appointed time and found the car had not been touched. "Very well," he said, "I'll take it to a garage where a promise to do a job

means something," and he stepped into the car, sat down and prepared to drive out. One of the owners stepped up and said: "Hold on. You owe fifty cents for storage." When the car owner objected, the front doors were closed and he was told, "You can't get out of here until you pay the fifty cents." He was in a hurry and rather than lose the time he paid the sum demanded.

How soon do you think that car owner will go back to that garage?

Garage owners like this one wonder why business falls off. Garage owners who operate their garages efficiently wonder why they find so many suspicious car owners. It is almost useless to point out to the owner of the ——— Garage how small and narrow and petty and injurious his plan of operation is. Breaking promises is bad enough—charging for storage after having broken a repair job promise is about the limit. Little wonder that car owners are suspicious.

A Department of BETTER MECHANICS

No. 25

Mudguard, Body and Lamp Straightening

Repairshop practice, as a whole, has not kept pace with the present day demand for appearance. Mudguards, bodies and lamps, when bent, are roughly pounded back to shape—and let go at that. In this the repairman overlooks a profitable source of business. With a small investment in tools, a little practice and care in their use, a new department may be developed that will not only show a profit, but will also feed the other departments.—
Editor's Note.

THERE is but one secret to metal straightening—to support all parts except that which is to be straightened, and to go slow, working the metal back to its original form by many light blows.

To do this requires many special tools, some of them taken directly from the tinsmith trade, but many of them developed on the job.

THE TOOLS

1—The blacksmith's fuller.—This is used as a hand anvil, either in conjunction with the light mallet, or the light hammer, particularly to remove small dents. The combination of flat surfaces with the rounded edge will cover a wide variety of work.

2—Half round file.—After all dents or indentations have been removed by use of the mallets, hammers and hand anvils, this file is used to remove any small pits or hammer marks, giving the metal a smooth surface.

3—Heavy wooden mallet.—Used in the preliminary straightening to roughly form the metal back to shape. The flat wooden surface does not dent the metal on flat or crowned surfaces and the cross peen is used to get into corners.

4—Light wooden mallet.—The most useful tool of all. After the metal has been pounded back to its original shape, the light mallet, in conjunction with some one of the hand anvils, is used to smooth up the work.

5—Medium cross peen hammer.—A tinsmith's hammer, used to still further smooth up the surface. Wooden mallets will not remove all of the smaller indentations. Hence this hammer must be used, as it strikes the required concentrated blow over a limited area. The cross peen is used to shape corners.

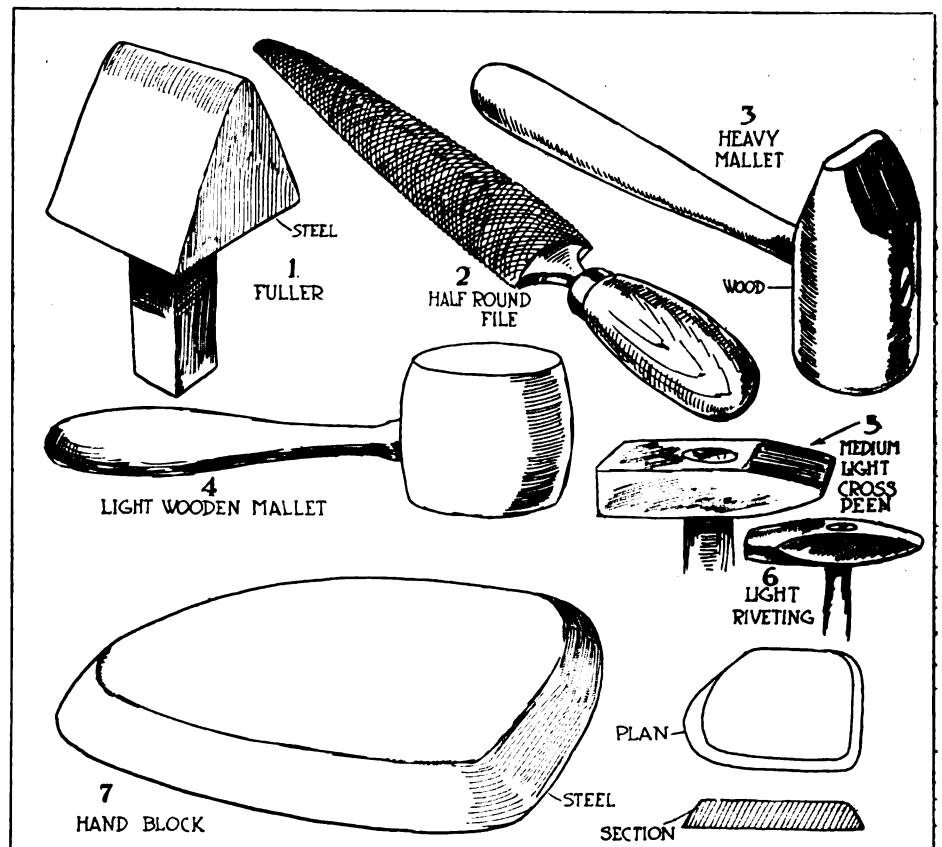
6—Light riveting hammer.—Any minor

indentation, not smoothed by No. 5 hammer, is taken out by the light riveting hammer. The cross peen is used to finish corners, prior to filing.

7—Hand block.—A steel block, roughly about 4 in. square, and 1 in. thick, with the corners rounded and beveled. The curves and beveled edges vary, so that some part of the block may be fitted to almost any part of the work. This and

the light wooden mallet are the most used combination.

8—Forming chisel.—Made in an infinite variety of widths, shapes and sizes. The one shown is used to form sharp corners, or edges. One with a half-round edge is used to re-shape a groove. By grinding the edge to the desired form, the metal may be readily driven to that form.



Mallets, hammers, file and special tools for straightening fenders

9—Beading tool.—The side strips on most fenders are held in place by rolled-in edges. When bent, these edges open. After straightening to the original form, the bead may be again closed by the aid of this tool, and a mallet or hammer.

10—Hand anvil.—An irregular shaped steel plate or block, mounted on a steel handle. The edges are beveled, and will fit almost any curved surface.

11—Babbitt hand anvil.—Made in an infinite variety of forms by pouring melted babbitt into an unbent portion of the part to be straightened. When hard, the shape is that to which it is desired to form the bent portion. A U-shaped steel rod forms a handle.

RESHAPING BENT METAL

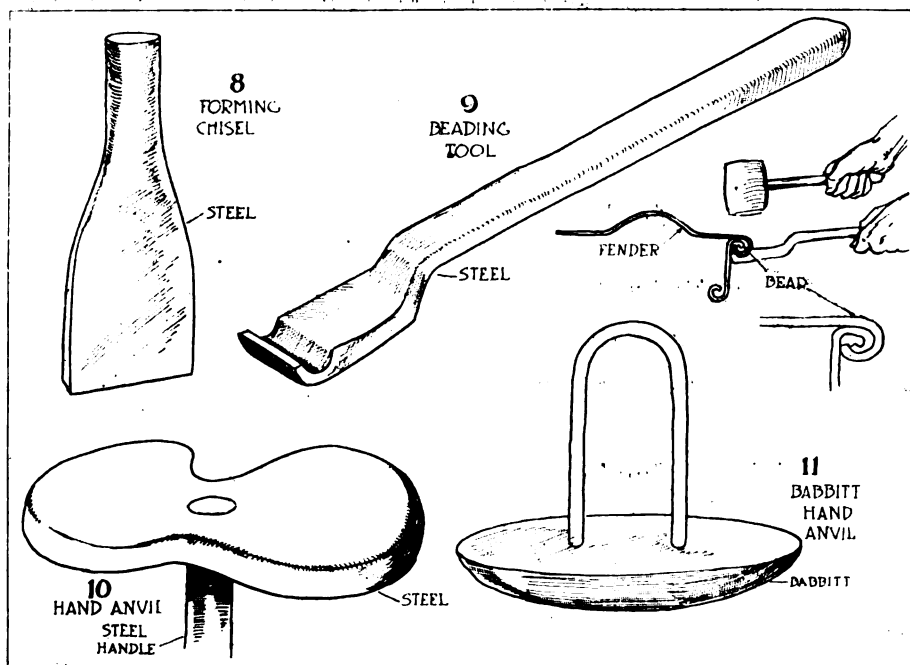
Bent metal surfaces, unless actually broken, may be restored to their original form. It is not usually advisable to attempt to straighten mudguards and lamps having broken surfaces. Any repair or patch applied is not usually permanent, and it is difficult to make a good appearing job.

The first step in straightening a bent metal surface is to work it roughly back to its original shape. This may usually be done by a heavy wooden mallet. Care must be taken not to break the surface or to draw it beyond the original shape.

A hand anvil of some sort should always be used in conjunction with the hammer or mallet to support the edges of the bent surface. Many light blows, rather than few heavy blows, should be applied, and the blows should be *drawn*, rather than applied *dead on*. The main thing is to go slow, to feel the dents with the hand anvil, and to direct the straightening blow to the point of bend.

After the surface has been malleted to approximately the original shape, the smaller dents should be removed, using first the small mallet and then one of the metal hammers. This is slow, tedious work, and should not be rushed, or the metal will be deformed rather than formed.

By passing the hand over the surface, many of the smaller dents may be felt and removed. Some, however, will still



A few of the strangely shaped tools used in repairing fenders

remain. These may be located by filing the surface down. The file will hit the high spots and pass over the low spots. Then the low spots may be pounded up to shape.

Finally it will be found that the file will touch all of the surface, except the smallest indentations. Then file the whole surface down to a smooth surface and polish with emery paper.

The four steps in this work are shown on this page, the section being that of a crowned mudguard. But mudguard, lamp or body, the principle is absolutely the same.

Before applying the paint, the surface

must be thoroughly cleaned with turpentine. This removes all grease that would otherwise prevent the paint from sticking. If the surface is that of a mudguard, the under side should also be cleaned and painted to prevent rusting.

For hurry-up jobs a quick drying enamel or a black japan may be used to paint the repaired section, the latter, of course, being only suitable for use on black guards or parts. The japan, mixed in turpentine, will dry in about 15 min., and after a few washes cannot be detected from the rest of the finish.

The foregoing applies to all parts—mudguards, lamps or bodies. In few respects body straightening differs from the other two. The surfaces bent are usually larger, more inaccessible and more difficult to bring back to shape.

Upholstery must be removed or the body raised to get at both sides of the surface. Another difficulty is that two men are often required—one to hold the hand anvil and the other to use the mallet or hammer. The co-operation between the two must be perfect or the anvil will not be back of the hammer blow and the surface will be still further bent.

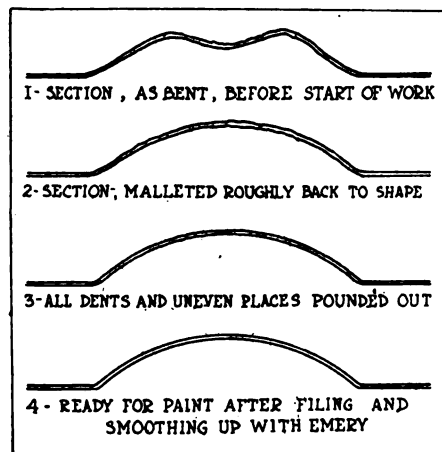
Scrap Metal Prices

NEW YORK, May 26—Following are prices paid by New York dealers during the past week for scrap metal. They are from *Iron Age*:

	Cents Per lb.
Copper, heavy and crucible.....	27.50
Copper, heavy and wire	26.50
Copper, light and bottoms	25.00
Brass, heavy	17.75
Brass, light	13.75
Heavy machine composition	24.50
No. 1 yellow rod brass turnings	18.00
No. 1 red brass or composition turnings.....	19.50
Lead, heavy	9.00
Lead, tea	8.50
Zinc	7.00

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains.....	2	Dec. 20
Maxwell—Rear axle repairs.....	3	Dec. 27
Chevrolet—Clutch repairs.....	4	Jan. 3
Borg & Beck—Clutch adjustments.....	5	Jan. 10
Hudson—Oil pump adjustments.....	6	Jan. 17
Reo—Clutch adjustment.....	7	Jan. 24
Buick—Rear axle adjustment.....	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor.....	12	Feb. 28
Paige—Oil level adjustments.....	13	Mar. 7
All Cars—Removing compression knock	14	Mar. 14
All Cars—Rebuilding the storage battery	15	Mar. 21
Cadillac—Rebuilding the radiator.....	16	Mar. 28
Ford—Magnet replacement on magneto	17	Apr. 4
Saxon—Clutch repairs and adjustments	18	Apr. 11
Timken—Rear axle adjustments.....	19	Apr. 18
Oakland 32—Oiling adjustments.....	20	Apr. 25
Ford—Overhauling axle in 1 hour.....	21	May 2
Hupmobile—Gearbox removal and replacement	22	May 9
Cleaning metal parts.....	23	May 16
Simplified directions for welding.....	24	May 23



The four steps in removing a dent from a sheet of metal

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kalser

Responsible for Employee's Negligence

A case dealing with the responsibility of a garageman for a motor car left in his charge has just been decided by the Supreme Court of Michigan. Suit was brought against the garageman by a car owner who had left his car to be repaired. He sought to be repaid for damages sustained to the car by reason of an accident which occurred while an employee of the dealer was unlawfully driving the car without the owner's permission.

The dealer was in the business of selling accessories, and also had a repair department in connection with the accessory store. A man named McDonald had been employed by the dealer as manager of the repair department. He was in the habit of opening this department for work each morning, and had a key to the garage for that purpose.

On the day of the accident the car owner left his automobile at the repair-shop to have several repairs made.

He was informed that afternoon that the repairs had been completed with the exception of adjusting the magneto and that that would be finished the next morning. Upon coming to the garage the next morning he found the car jacked up with one wheel smashed and in a more or less damaged condition. He was informed by Mr. McDonald that he had taken the car out to test it the evening before, and that the car skidded into the curbing and was damaged. The owner took the car away and had the repairs made at another garage.

It appeared on the trial that in reality McDonald had not taken the car out to test it at the time of the accident, but that he and a friend had taken the car without the garageman's permission, and indulged in a ride which lasted until about two o'clock in the morning, when the car skidded into the curb and smashed the wheel.

The dealer contended that when it is undisputed that the injury complained of is caused by an employee when acting outside of his employment, and against the express orders of his employer, and without the latter's knowledge or permission, a garageman is not responsible.

The court decided that the dealer was responsible, however, stating that when

there is proof that the property was delivered to the garageman in good condition, and that he failed to produce it in condition similar to that in which he received it, a prima facie case of negligence is made out.—Smith vs. Bailey, 161 Northwestern, Michigan 822.

May Restrain Use of Similar Name

Where one partnership engaged in the business of selling parts uses a name so closely imitating the name of an established firm engaged in the same business as to be calculated to mislead or deceive, it may be prevented from further use of such name by injunction on application of the injured partnership.

The court held that although persons are entitled to enter the business of repairing and supplying new parts for old automobiles, and although they may specialize in any particular make and model, and advertise that they specialize, they cannot imitate the name of another concern, so as to benefit themselves to the injury of the other firm.

It was further held that the injured firm need not wait until the imitative name was actually used, but might get an injunction before it was used even if it was assumed in good faith, without any intention to mislead the public or to interfere unfairly with its competitors' trade. The use of the name Imperial Sales & Parts Co. was therefore restrained because it too closely resembled the name Imperial Automobile Parts Co.—161 Northwestern Reporter, Michigan 958.

Hiding Chattel Goods a Misdemeanor

Where persons who have given a chattel mortgage on personal property sell, hide or dispose of it, they are guilty of a misdemeanor under the New York law, if this is done with the preconceived design, intent and purpose of cheating and defrauding the person who holds the mortgage.

If the person who is given the mortgage is not in default on any payments, a mortgagor who is in possession of the property has the right to sell it until such a time as he is behind in his payments whether the party buying it knows

of it or not. In this case the mortgage follows the property and is still good although the property is in the hands of the buyer.—Norton vs. Schields, 161 New York Supplement, page 880.

Mechanic May Hold Car If Charge Is Unpaid

Wheelwrights and mechanics have a common law lien for repairing automobiles in Arkansas, according to a recent decision of the Supreme Court of that state, which has just been handed down. Under this decision Arkansas' garagemen are justified in holding motor cars and selling them upon giving a bond in an amount to be fixed by a justice of the peace or a circuit judge after 30 days have elapsed from the time the work was completed. Because the dealer had not filed his lien notice with the clerk of the circuit court, as prescribed by law the car owner was held to be entitled to the possession of the car in this particular case.—Winkler vs. J. M. Lowe Auto Co., 191 Southwestern, Arkansas, page 927.

Insurance on Sold Car Not Transferable

The Supreme Court of Massachusetts recently decided that after a motor car has been sold, an insurance policy renewed in the seller's name is void, and cannot be transferred to the buyer, so as to bind the company if a loss occurs.

The reason for this, said the court, is as the seller no longer owned the car, and had no interest in it at the time the policy was renewed, he could not insure it, and if he had a right to a valid policy on the car, he could only transfer what he did have—which was a void policy.—Mowles vs. Boston Insurance Co., 115 Northeastern, page 666.

Seller May Demand Cars If Payment Is Defaulted

Where automobiles are sold under a conditional bill of sale in New York, if the buyer defaults in payment for them, the seller may take them back. In the event that this is done, however, and unless the seller then sells them at public auction, after they have been held for 30 days, the buyer may get back from the seller the money he has already paid on the articles.

What Does This War Mean To Me?

How Seventeen Leaders of Thought Answer the Question

□ □ □ □ □ □ □ □ □

- 1—Business Will be Bigger but Different
- 2—Mighty Transfer of Labor May Result
- 3—Freight Cars Must Be Unloaded Quickly
- 4—Must Be Conservation in Spite of Plenty
- 5—Higher Efficiency Is Bound to Follow

□ □ □ □ □ □ □ □ □

WASHINGTON, May 25—Seventeen of the most prominent men in the United States have answered the most important question of modern times. That question is: "What does this great war mean to me?"

They answered it at a Conference of Business Papers held here in the National capital to-day. Five members of President Wilson's Cabinet answered the question. Twelve men high up in the councils of the nation and in intimate touch with every detail of the war machinery of the country answered it. And in answering it they have given new understanding to the meaning of the war to the United States.

In answering the question, these seventeen men spoke directly to several million men and women scattered to the four corners of the country. More than 109 separate industries were represented at the conference. There are few channels of human endeavor that are not served by a business paper represented at the conference.

The next three years are going to be strenuous years. This note ran through every address. It is going to be no time for sitting still and hoping; it is going to be a time for action, for preparation and for the execution of every effort that will win this war for democracy.

For it will be won for democracy. Secretary of the Interior Franklin K. Lane put it well when he said: "This is a war of Feudalism plus Science on the one side and Democracy plus Science on the other. The two are irreconcilable. Government by the soldier is not consistent with government by the people. The United States has taught every other nation of the world all they know of democracy. That is why our sympathies

are with our allies and why we are in this war to-day.

2½ Years to Understand Democracy

"It has taken America two and one-half years to understand what democracy means. We have required to see the world's greatest war in progress and to feel the menace of the military power of our enemies in order to bring a realization of the ideals for which we must fight.

"If the German military machine should win this war," said Lane, "Germany might demand Canada as an indemnity; then we would live in constant fear that our 3000 miles of border would be invaded."

Coal Shortage a Myth

The war means much to us in the case of fuel and food. "To-day there is no coal famine, no shortage," said Francis S. Peabody, chairman of the Committee on Coal Production of the Council of National Defense. "It is simply a coal panic. There is more coal available than ever, but everybody wants coal at once. They have been unable to get it because of transportation difficulties.

"Producers have been shipping to tide water, and there shipments have been held up until sufficient accumulated to make a shipload. Sometimes this has taken weeks. Now an arrangement has been perfected whereby coal producers pool their shipments, and immediately a shipload accumulates, no matter who shipped the coal originally, it is sent on its way. Thus, there may be coal in the ship belonging to several producers. But the ship is full and on its way, and if there are 10 shippers, for example, every one of the ten ships exactly the same quantity of coal he would under other circumstances except that he ships it quicker."

Law of Demand Inelastic

"The trouble with the food supply," said Dr. Pierson, president of the Iowa

State College, "is that the law of supply and demand is so inelastic. Thus, even a slight falling off in the supply creates an abnormal demand, and as a result prices go up out of all proportion. Conversely, if the supply exceeds the demand only slightly, the bottom falls out of the market.

"What is needed here is sane conservatism, the elimination of waste and the utilization of every crumb of food that the supply may be always equal to the demand. The May wheat acreage is 31 per cent short of last year's, but the corn crop is good and is three times as great as the wheat crop.

"Labor is the determining factor in food supply. To-day we are one and one-half to two million men short on the farms. This is due to two reasons: (1) Hitherto, farming has not been profitable because it was not carried on in a scientific manner; (2) the stimulation of industries and the appeal of the city have made heavy drafts on the farmer army of the country.

"To offset this in part, Kansas farmers are now putting electric lights on their tractors and working them 24 hours a day. And so that the maximum work can be gotten out of the tractors, the State maintains a corps of tractor experts who are available to any farmer—often within an hour.

Industries Need Men

"There are more men needed in the industries than in the trenches," said Secretary of Labor William B. Wilson, in taking up the question of labor. "Business will be good but it will be different," he said, "and this will mean a transfer of labor from one field to another in many cases. Manufacturers whose output is two-third luxuries and one-third necessities may have to cut out the luxuries and concentrate on the necessities. This will mean a transfer of labor."

"We may even have to take our in-

dustrial laborers and put them out in the fields to help with the harvest," he said. "I see no reason why certain factories should not arrange so that a percentage of their workers can be spared during part of their time to help the farmers."

As another means of helping the farmers, he said, the nominal head tax of \$8 required of Mexican immigrants has been eliminated for the period of the war, providing such immigrants come into the United States for the purpose of farming and stock to their purpose.

This need for a possible transfer of labor also was emphasized by Secretary of War Newton D. Baker. He also said "Business will be better but it will be different business."

Jar Us Out of Our Habits

"It will be a disconcerting war, an inconvenient war, for it will jar us all out of our life long habits. And nothing becomes an asset until it becomes a habit. The war will require the closer co-ordination of industrial, commercial, agricultural and social forces, and it will be won by the nation that can bring about the closest co-ordination. It's to be a war of smokestacks. It will require a quicker whirling of the wheels of commerce and a more efficient whirling."

What this greater co-ordination may mean was explained by Secretary of Commerce Redfield, who stated that the greatest benefit the war will have will be its power to make us all look around and develop new things to take the place of those that have been cut off.

Developing American Resources

"When this war started," he said, "all our optical glass was made in Germany. Every piece of glass for telescopes, periscopes, microscopes and a hundred and one other scientific uses, was imported. Since the war, through the research department of the United States, optical glass every bit as good as the imported variety has been developed and arrangements now are being completed for its manufacture. Again, before the war, practically all of our potash came from abroad. But only last week a shipment of 10,000 tons was made from the Pacific Coast."

"In the field of food, too, we have been taught to look around us. In our rivers and lakes are millions of tons of fish which can be utilized for food, but which likely might not have been discovered for a long time if it had not been for the war. To-day the quantity of such fish that can be put upon the market is only limited by the capacity of factories to turn out tin cans."

Men, Metal, Machinery, Money

"The one thought which we must get into our minds," said Frank Scott, chairman of the Munitions Board, "is that we are in the war. The four essentials of the war are (1) men, (2) metal, (3) machinery and (4) money. We have the men and the metal and the machinery and the money. But we have got to organize these in a different way for the war."

Read What These Men Think of the War

George Creel, chairman Committee on Public Information.

Francis S. Peabody, chairman Fuel Board, Council of National Defense.

Dr. Pierson, president Iowa State College.

Franklin K. Lane, Secretary of Interior.

Newton D. Baker, Secretary of War.

Josephus Daniels, Secretary of Navy.

Wm. C. Redfield, Secretary of Commerce.

Frank A. Vanderlip, president National City Bank, New York.

Wm. B. Wilson, Secretary of Labor.

Van H. Manning, director United States Bureau of Mines.

Herbert C. Hoover, Food Administrator.

Walter Gifford, director Council of National Defense.

Frank Scott, chairman Munitions Board, Council of National Defense.

Dr. Franklin H. Martin, in charge of Red Cross Work, Council of National Defense.

Howard Elliott, ex-president N. Y., N. H. & H. Railroad, chairman Railroad Executive Committee, Council of National Defense.

George Otis Smith, director United States Geological Survey.

Lewis B. Franklin, Liberty Loan Publicity Bureau.

Some idea of the great quantity of munitions that will be needed was made plain by Scott. During the battle of Gettysburg, he said, the 84,000 men in the Federal army used 310 cannon and fired 32,726 rounds of ammunition in 3 days. To-day this much could be fired in 7 minutes. Again, when Sherman marched from Atlanta to the sea he took with him 60 guns and 200 rounds of ammunition for each. This much ammunition could be fired to-day in 10 minutes, yet it was supposed to be enough to last Sherman from October until January!

How Guns Wear Out

The modern 3-in. quick-firing rifle, he said, fires from 20 to 26 shots a minute. This wears away the gun very quickly and it must be shipped back to the factory to be relined. In the mean time another must be provided to replace it.

In the Civil War simple cast-iron shells were used and little machine work was necessary. To-day an ordinary shrapnel

forging requires 53 machine operations before it is loaded and the fuse put in.

The biggest problem before the Government at present, he said, is the building and equipment of some 32 military cities to house 30,000 troops each. These must be all complete between to-day and Sept. 15.

Railroads Are Inadequate

For the transportation of these troops, and of the vast quantities of foodstuffs and industrial products, said Howard Elliott, ex-president of the New York, New Haven & Hartford Railroad, the United States has 250,000 miles of railroad. And connected with this great network there are more than a million and a half stockholders and over two million employees. Yet, despite this tremendous enterprise, the railroads of the country are inadequate in capacity to produce sufficient transportation. They should spend a million a year on improvements.

Elliott brought right home to the dealer and garageman one specific way in which they can help win this war. That is by unloading freight cars promptly. There is no such thing as a freight car shortage, he said. To-day there are more than two and one-half million freight cars in the United States, and on May 1 the so-called shortage amounted to only 150,000 cars, which is about three-fourths of 1 per cent.

Unload Freight Cars Promptly

The great trouble is that cars are not unloaded promptly. In Germany at present cars must be unloaded in 6 hours, he said, whereas at home here demurrage charges do not begin till after a period of 48 hours, and even then they are far too low.

Just how closely the Government is co-ordinating the work of some industries was well brought out by Dr. Franklin H. Martin, in charge of Red Cross Work, Medicine and Sanitation of the Council of National Defense. All of the instruments which are used in surgical work for the army have been standardized, and although more than 90 per cent of them heretofore have come from Germany, they are all made now in the United States, are catalogued and may be purchased in any one of half a dozen American cities at once.

Army Needs Doctors

Dr. Martin emphasized the need for more doctors for the army. He stated that the work of the army doctor is far more hazardous than that of any other branch of the service, not even excepting the aviation section.

One year ago 21,000 doctors were selected by the State medical authorities throughout the country as an army reserve, thus forming the nucleus of an organization to direct sanitation and medical work. At present a force of 100 doctors is being sent to the warring nations in Europe at the rate of 200 a month. Six hospital units, each consisting of 24 doctors and 64 nurses, and others, making a total personnel of 196 already have been sent. American doctors sent abroad are put with the British and French armies in the field for train-

ing so that they may be able to work intelligently when our soldiers arrive.

Navy Has 36,000 Engineers

No matter how hard the Government and the people may work in this war, it will be a crime for anyone to make more profit from such operations than would be made under ordinary circumstances, said Secretary of the Navy Daniels. To-day the navy is too far from the people, he said, and they must be brought to believe that it is their navy. The navy has a more highly trained body of men than ever before, and the time is rapidly approaching when none but those with technical training of some kind will be recruited. At present there are upward of 35,000 trained engineers registered and busy on navy work.

That America has plenty of natural resources was pointed out by George Otis Smith, director of the United States Geological Survey, and he added that our productiveness is easily keeping pace with the increased demand induced by the war. Although the demands of our allies have increased from 50 to 100 per cent, we are mining more ore, and what is more important, we are getting more metal out of poorer ore than ever before.

Must Conserve Oil Supply

Conservation of the crude oil resources of the country is vitally necessary, according to Van H. Manning, director of the United States Bureau of Mines. In the face of a tremendously increasing demand, the supply of oil and gasoline is decreasing.

Manning called attention to the fact that Great Britain had found it necessary to curtail the use of gasoline for other than army uses, and that such a curtailment was a possibility in this country.

It is expected that the production in 1917 will be less than that in 1916, and as a result it is estimated that 60,000,000 barrels must be taken from the reserve of 150,000,000 barrels left over from last year. As an example of the increased demand for fuel, Manning pointed out that the horsepower developed by internal combustion engines had increased 100 per cent in 2 years.

Should Develop Other Fuels

To meet the situation, Manning urged the use of other fuels and better methods of production. In this connection he mentioned that considerable progress has been made in the use of the cracking process by which the yield of gasoline from crude has been considerably increased.

To-day Mexico is producing 40,000,000 barrels of crude a year, and of this about 32,000,000 barrels come to the United States. Its content of gasoline, however, is low, and its greatest value is in its use under fuel oil boilers. Oil was originally used under boilers because it was cheaper than coal, he said, but this is no longer true and some railroads are turning away from oil.

Money is the Great Need

The great need of the war is money, said Frank A. Vanderlip, president of

Important Announcement

IN its endeavor to better serve the interests of its thousands of dealer, jobber and garage owner subscribers, MOTOR WORLD will inaugurate an important new department in next week's issue.

It will comprise complete specification data on cars and trucks manufactured in the United States, presented in tabular form so that it will be easily available for the guidance of all dealers and maintenance men.

Another important specification table to be included will be a complete list of tires produced in this country, together with quotation of sizes and prices. This tire data will be invaluable to every tradesman who sells tires and tubes.

A fourth specification table will be a presentation of important data relating to lighting equipment of 1917 passenger cars. This will include type and size of electric lamp bulbs used in head, side, tail and dash lamps; kind of sockets; type of dimmer; wiring system; method of focusing, etc.

Every subscriber will be interested in this development of MOTOR WORLD service. It represents a distinct advance in the promotion of reader interest.

Specification data as outlined will be presented in *the first issue of every month*. With each presentation all necessary revisions will be made in order that the service to our readers may be accurate and up to date.

the National City Bank, in a plea for a wider subscription to the Liberty Loan and in explanation of its principles. This loan cannot be subscribed from the past savings of the people, he said. It must be taken up by using the savings of the future.

To-day there is not enough money in the savings banks of the country to permit the subscription of the loan. In all the savings banks there is not more than \$5,000,000,000, and in the sub-treasuries of the Government there is not more than \$2,000,000,000.

Therefore, this loan must come out of future savings. We must save here and there, right now; we must forego mere luxuries and put the money we would put into them into this Liberty Loan. In this respect our task is much harder than was that of England and the Allies, for America is self-contained and can look to no outside country. America is the court of last resort in so far as raising money for America is concerned.

Great Lesson of Thrift

The greatest lesson which this war will teach us, according to both Vanderlip and Lewis B. Franklin, of the Liberty Loan Publicity Bureau, will be the

lesson of thrift. Putting our savings of the future in the Liberty Loan will teach us thrift in a way that will never be lost. Every person regularly receiving wages of \$10 a week or more should buy a Liberty Bond, said Franklin.

To-day America is doing business which is a record from month to month. And it is going to be still greater, for every cent of the Liberty Loan, part of which is going to our allies across the seas, will be spent right here in the United States. The gross income of the entire United States, said Franklin, is \$50,000,000,000 a year, and of this the Government wants only 10 per cent.

During the course of the war, said George Creel, chairman of the Committee on Public Information, not all the news the public would like will be published. In our daily papers we cannot expect to see such specific information as will be of direct benefit to our enemies. The Committee on Public Information, which includes nearly all the members of the President's Cabinet, has been formed to see that only information that will not help the enemy becomes public property, and to see that correct information concerning what the public may know is given out.

The Nation's Business Is War

Motor Car Industry Holds the Key to the Transport Problem

Of 5000 Who Register Perhaps 200 Will Be Drafted

This the first of a series of articles which will explain the business side of the great war. Business will be good but it will be different; it will require certain changes in every organization.. This series will explain what these changes may be

THE motor car industry holds the key to the transport problems of the war. This statement of itself is not startling, for it already is known to every thinking dealer and garageman in the country. But K. W. Zimmerschied, Advisor of the Automotive Board of the Council of National Defense made it really startling when he outlined to the Detroit Section of the Society of Automotive Engineers the extent to which the government will use trucks in the war.

Already the government has asked for bids on 35,000 to 40,000 trucks of 1½- and 3-ton capacity. These will fall far short of actual requirements, however. The peace strength of the United States Army is about 50,000 men. Its war strength is to be 2,000,000 men. Every division of 28,000 men requires a minimum of 625 trucks. In other words an army of 2,000,000 will require an initial equipment of 44,625 trucks. How many more will be required if these trucks get into action, it is difficult to forecast.

The government will also use "tanks" such as have been used with such effect by Great Britain. Tests are even now being made on these vehicles and they will be developed as rapidly as possible.

The men to man these trucks and to carry rifles in the ranks won't make such

a big hole in the ranks of the workers, after all, according to Zimmerschied. Here are some of the points confronting the government, as abstracted from Zimmerschied's paper.

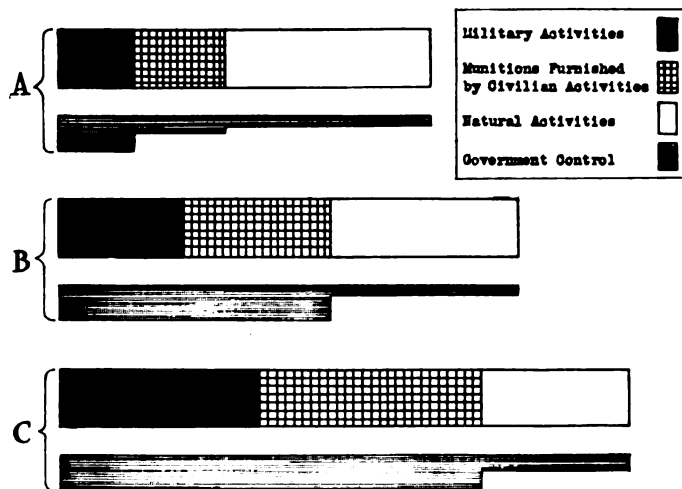
1. The Effect of Conscription. Every man from 20 to 30 will register, which means about 250 out of 3000 inhabitants; that is, one man out of every ten or twelve. On this basis there is little danger that the automotive industry will be seriously harmed by the draft. The possibility for harm is still further decreased by the fact that anyone necessary to the industry may be exempt—and considered to be giving service equivalent to service on the firing line. This has been the practice in England and has been found very satisfactory.

The following are some of the figures estimated on a basis of 5000 men: Out

of 5000, 2000 will register. Of this 2000, 200 will be drawn. Of this 200, 20 might possibly be exempt because of manufacturing necessity. Hence out of a plant employing 5000, the chances are that not more than 200 will be drawn.

2. The Raw Material Market. All disposition of raw materials is subject to the action of the priority board, which is under the council of national defense. This board first looks out for military need, examines cases of complaint, and orders sources of supply to furnish the raw material as deemed necessary. The Interstate Commerce Commission is working in harmony with this board.

Though the priority board is at present chiefly interested in material directly related to munitions, it may later interest itself with the more remote sources of raw materials. Under this head would



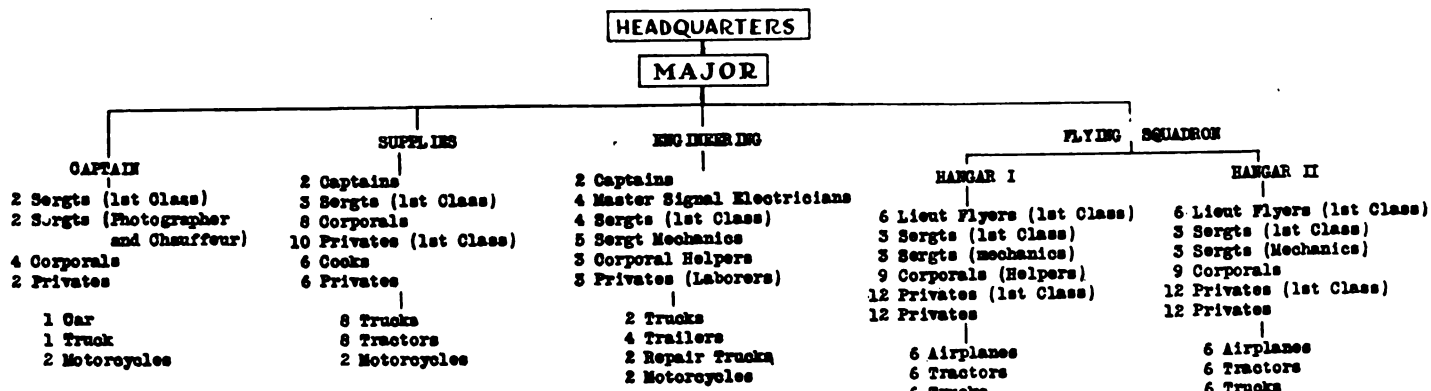
How War Affects Our Activities

From Experience of the British War Board

A—Military activities are a small part of the total as are civilian activities for war purposes; natural activities are not much curtailed and government control affects little but the strictly military.

B—The total activities have increased and natural activities have decreased. Military activities and activities affecting the civilian have increased as has government control.

C—The total activities have materially increased and there is a further decrease in natural activities. All other activities show an increase as does government control.



This chart shows the organization of the flying squadron. Twelve airplanes require 173 men

come tractors, farm implements, etc., as affecting the food supply. Also, it would not permit any source of livelihood to be destroyed by war conditions, thereby throwing any one community into dependence.

No fixed priority policy is possible because conditions vary from time to time. This board is co-operating with the French and British, and while conditions are not the same in all three countries, this commission will see that the American industry is protected.

3. The Place of the Industry in War. To-day the automotive industry is vitally necessary to the carrying on of war. It holds the key to the transport situation and renders a quick movement of troops and supplies possible. The first question the industry is asking is how much material is needed and where is it needed.

The Quartermaster Corps uses two types of general purpose trucks—type A of 1½-ton capacity and type B of 3-ton capacity. Due to the construction, the overload capacity of type A is 3-tons, and of type B, 5-tons. A complete booklet describing the specifications of these trucks is now ready.

At present from 35,000 to 40,000 of these trucks are to be used, in the ratio of six type A trucks to one type B.

In the ordnance department the requirements for trucks are different. Any truck mounting armor plate is considered to belong to the ordnance department, as well as tractors for guns, a few armored cars, and tanks.

Armored cars have not proven satisfactory in the present war. Tanks have been more so, but must be developed. The first British models bear about the same relation to the tanks of to-day as did the first automobile to the present-day car. A board consisting of three army officers and one civilian is at present making tests on some government tanks, and the American tank will be developed as fast and as well as circumstances permit.

Each division of 28,000 men will require 625 trucks, forty-eight ambulances, and twelve airplanes

The Engineer Corps use trucks about the same as the Quartermasters' Department. These constitute wrecking, erecting, and specially equipped trucks suitable for bridge building and other engineering work.

Under the Signal Corps is the Aviation Corps; hence the Signal Corps uses many trucks of the Quartermaster type, trucks equipped with wireless, trucks for raising and lowering captive balloons, repair trucks, trailers, and airplanes.

Though there has been no little fear and speculation on the development of the airplane in the United States, there is little cause to worry. Progress has been slow but taken up in a logical manner. The first problem was that of getting fliers; next to get machines in which to teach the fliers; and third to get a sufficient supply of war planes.

Experience on the continent has proven that military training is the first requirement in the development of an aviator. Particularly in the Canadian contingent

COMING!

Your Business Is War

War Changes Business Conditions

Business Will Be Good But Different

Are You Studying Changes in National Business?

Are You Planning to Adjust Your Business to Changing Conditions?

Are You Adjusting Your Business to Changing Conditions?

this was not done at the beginning of the war, and it was found that the fliers were too independent and lacking military training. The flier must first be a soldier and next an aviator.

Aviation schools are being founded all over the country. There will be schools at Berkeley, Cal., Cornell University, University of Texas, University of Illinois, University of Ohio, and University of Massachusetts. At present the course lasts from 1 month to 6 weeks, though later it will extend through a period of 2 months. The student receives instructions in meteorology, aero-dynamics, physics, and on about twelve subjects at the basis of flying. At the same time he is receiving military training and preliminary instructions in flying. There are some few university graduates who have had this preliminary training. These were accepted by the aviation department and are now in the existing schools.

Funds have been appropriated for many fields to be used in airplane in-

struction. The three first are the Joy field at Mt. Clemens, a field at Dayton, Ohio, and another at Champagne, Ill. Doubtless inside of 3 months these fields will be going full blast, getting the second and third line recruits in order.

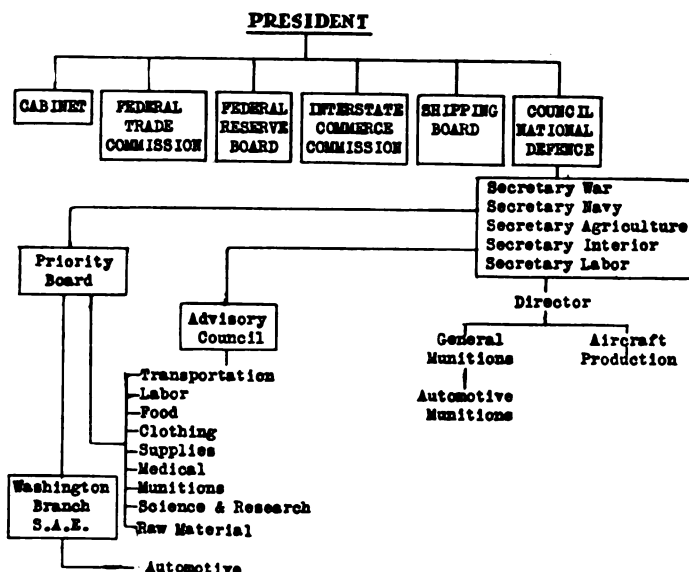
A complete flying squad comprises twelve airplanes and 174 men. Hence, if 1000 planes were in use the aviation department would require 173,000 especially trained men. Each school field has about two squadrons, 144 cadets, 600 enlisted men, 48 non-commissioned officers, 36 commissioned officers, 24 instructors, and 72 airplanes; within the next 12 months, 3500 airplanes will be constructed for instruction purposes. This will be enough to care for all the fliers.

The requirements for the war planes are much higher than those for the instruction planes. The two difficulties confronted are that there are few expert workers on hand, and that the engines are very hard to build. Our task is to make airplane engines on a production basis. Concerning the war planes, plans are not so definite as with the instruction planes, but the country has nothing to fear. When our real army goes it will have its full quota of well equipped fliers and airplanes.

4. Activities in Farm Tractors. There is a committee on farm tractors getting behind the manufacturer, protecting labor, and providing for plenty of tractors. Farmers must be taught to operate the tractors after they are built, and neighbors not individually having farms large enough to merit a tractor will be grouped together to use a community tractor. It is estimated that the tractor will increase the grain yield 500,000,000 bushels. This will be 50 per cent increase of the maximum 1917 production. In addition the Department of Agriculture is working night and day and co-operating with the British.

In closing, Zimmerschied stated that vast problems are confronting us—that mistakes will be made—but in the end we shall come out three times the victors.

This chart shows the relation of the Automotive Committee to the Council of National Defense and the President



What Is a Liberty Bond ?

They Also Serve Their Country— Who Buy a Liberty Bond

This is the first of a series of brief articles which will outline the principles of the Liberty Loan and explain the advantages of this form of patriotic investment. Future articles are: "Why Should I Buy a Liberty Bond?" "How Can I Buy a Liberty Bond?" "How Shall I Keep My Liberty Bond?"

THE Liberty Bond is the United States Government's printed promise-to-pay, with interest, money which the government has borrowed to carry on the war. The Liberty Bond is a gilt-edge security.

The government must raise money with which to carry on the war, and there are just two ways in which this can be done:

1—By taxation.

2—By the sale of bonds—by borrowing from the people.

But before the government can borrow money in this way it must get the consent of Congress, and therefore of the people. Congress must know exactly how the money is to be raised and on what terms the bonds are to be issued. Here are the facts:

Two kinds of Liberty Bonds will be issued: What are called "Bearer" bonds, and registered bonds. The former are issued in denominations of \$50, \$100, \$500 and \$1,000. Registered bonds are issued in denominations of \$100, \$500, \$1,000, \$5,000, \$10,000, \$50,000 and \$100,000.

These two kinds of bonds are identically the same. Both bear interest at the rate of $3\frac{1}{2}$ per cent, payable semi-annually and both have back of them the Honor of the Government and the Wealth of the Nation. *They are the safest bonds in the world to-day.*

The act authorizing the issuance of Liberty Loan Bonds was passed April 24. It provides for a total issue of \$5,000,000,000 of $3\frac{1}{2}$ per cent bonds, with the interest payable every Dec. 15 and June 15 after Dec. 15, 1917.

The principal is repayable by the Government in United States gold coin on or after June 15, 1932, at the option of the Government. If this option is not exercised, the bonds will run for a full 30 years and become payable June 15, 1947.

In the meantime the bonds are paying $3\frac{1}{2}$ per cent interest a year: On \$100 this is \$1.75 every June 15 and Dec. 15; on \$500 it is \$8.75 every 6 months.

And there can be no taxes to reduce this interest amount.

Liberty Bonds are exempt both as to principal and interest from all taxation, national, State, county or municipal, except the inheritance tax, which is really not a tax on property, but on the *transfer* of property by will or inheritance.

Liberty Bonds are to be sold at par—that is, dollar for dollar. There is no premium and no discount. Wherever or from whom the bond is bought, the price will always be the same.

Liberty Bonds will be sold by the Treasurer of the United States and by all Federal Reserve Banks. These are in the following cities: Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta (with branch at New Orleans), Chicago, St. Louis, Minneapolis, Kansas City, Dallas and San Francisco.

In addition, all banks, national and State, as well as post offices and express companies, have been designated as agents by the government to receive applications for Liberty Bonds.

It is as easy to buy a Liberty Bond as it is to buy a Post Office Money Order.

It is not necessary to pay cash in full for a bond. It is only necessary to pay 2 per cent down when the bond is bought. That is, \$1 on a \$50 bond, \$2 on a \$100 bond, etc. The balance is spread over a period of nearly 3 months—18 per cent, or \$18 on a \$100 bond, on July 25, 1917; 20 per cent, or \$20 on a \$100 bond, on July 30; 30 per cent on Aug. 15 and the balance of 30 per cent on Aug. 30, 1917.

To buy a bond it is only necessary to go to any designated agent, a bank or express company or post office and fill out a simple application, paying 2 per cent of the amount of the bonds applied for. A certificate is then issued, which is a receipt.

The bonds themselves will be ready for distribution June 15.

Liberty Bonds for St. Louis

ST. LOUIS, May 28—All surplus funds of the St. Louis Automobile Manufacturers' and Dealers' Association will be invested in Liberty Loan Bonds, according to a resolution passed at the May meeting last Wednesday. The association also donated \$500 to a motor car mechanical school to be opened at once by the Y. M. C. A. Members present donated \$1,300 additional. The course of study and the equipment to be used were laid before the association. The new mechan-

ical course for motor car mechanics planned by W. R. Colcord of the Dorris Motor Car Co. for the David Rankin School for Mechanical Trades also was outlined. An invitation of the Automobile Club of St. Louis to supply needed cars for navy recruiting agents was accepted. The navy men had asked for five cars daily until the new purchases by the Government were available. The club had arranged to supply three, provided with gasoline, and the association pledged two.

Boston Dealers Buy Bonds

BOSTON, May 26—The Boston automobile trade, comprising the dealers, tire, garage and accessory forces, held a meeting yesterday and picked out June 4 as Liberty Bond Day. On that day a concerted effort will be made to sell the bonds to the different forces. Some of the dealers have done their selling already. John H. Johnson of the Buick called a meeting of his forces Monday and he sold bonds to every one of the 85 employees on his staff.

Automotive Committee To Assist Government

Clifton Heads Board to Act as Intermediary Between Makers and the Government

WASHINGTON, D. C., May 25—An Automotive Committee of the Council of National Defense has been appointed to act as an intermediary between the automotive industry and the Government in matters relating to government needs as to motors, and motor transport matters. The committee will also have in charge all questions relating to field artillery and farm tractors as they are related to the food supply of the country.

The chairman of the committee is Charles Clifton, president of the N. A. C. C., and other members are: C. W. Stiger, president of the Motor & Accessory Manufacturers and president of the Stromberg Motor Devices Co.; H. L. Horning, chairman of the Tractor Standards Division of the S. A. E., also chief engineer of the Waukesha Motor Co.; Henry R. Sutphen, chairman of the Marine Standards Division of the S. A. E. and vice-president of the Submarine Boat Corp.; K. W. Zimmerschied, past chairman of the Standards Committee, S. A. E. and metallurgist of the General Motors Corp.; Coker F. Clarkson, general manager of the S. A. E., and Frank H. Russell, president of the Aircraft Manufacturers' Association.

In addition to this committee acting as advisory to the Government in all matters involving the use of the internal combustion engine in automobiles, trucks, ambulances, farm tractors, motor boats, airplanes, field artillery, etc., the committee will act as a receiving body to consider complaints of manufacturers in these various lines, and in turn pass these complaints on to other authorities for final action.

It is planned that the Automotive Committee will take cognizance of the work of the S. A. E. in an effort to get explosion motor products which the government purchases as free from complication as possible and standardized to the greatest extent. Governmental authorities are expected to be given very much assistance in all matters relating to the wider use of the explosion motor, and expects the Automotive Committee to assist the departments of government in quickly reaching solutions in these problems.

Whereas many of the committees appointed by the Council of National Defense are temporarily residing in Washington, it is not expected that the members of the Automotive Committee will have to take up their residence in the Capitol.

The appointment of the Automotive Committee is but one more example of the good work accomplished in automotive transportation by the Council of National Defense, and naturally much of the credit in this work rests with Howard E. Coffin, who is one of the very active spirits in the advisory commission of the Council, and who has the interests of the automotive industry much at heart. There is no better way for the government to be correctly advised on the uses of automotive apparatus and the better ap-

plication of the internal combustion motor to all types of apparatus than through an advisory committee of this kind.

It is not expected that this committee will be a center of development, but that it will serve as a clearing house between the government and the various industries using the internal combustion motor. The government cannot afford to act with individuals or individual factories but rather with industries, and such a clearing house committee as this should be ideal for the purpose, in that its membership represents practically all of the organizations representing the industries using the explosion motor.

Butler Is Sales Manager for New Bearing Co.

PHILADELPHIA, May 28—Charles S. Butler, who for more than 6 years has been advertising manager for the Hess-Bright Mfg. Co., has severed his connection with that company. He is taking up new duties as sales manager for the Carlson-Wenstrom Co., Philadelphia, which is shortly to place on the market a high-grade double-row ball bearing. Prior to Butler's long connection with the Hess-Bright company, he was for several years connected with the executive forces of the Link Belt Co., Philadelphia.

Rutherford Tire President Dies

RUTHERFORD, N. J., May 24—Francis Cornelius Van Dyk, president of the Rutherford Rubber Co., maker of Sterling tires, died May 21. He was 79 years old and was born at San Juan, Porto Rico. Up to the time of his death he was president of eight land companies and was interested in silk manufacturing. He was president of the South Scranton Throwing Co., vice-president and director of the North Jersey Title Insurance Co., Hackensack, and vice-president and director of the Second National Bank of Paterson for many years.

Two New Niles Trucks

NILES, O., May 26—The Niles Car & Mfg. Co. will soon have ready a 3½ and a 5-ton truck. These are in addition to the 1 and 2-ton worm-driven trucks which the company will continue to produce. On May 1 the company adopted a new sales plan whereby all sales now are made through dealers, none being made direct to consumers by the factory.

Maibohm to Make Bodies

RACINE, May 26—The Maibohm Motors Co. is completing the installation of equipment for the manufacture of its own bodies. When the installation is complete, the company will make known a number of new body styles; at the present time production is confined to a two-passenger roadster which sells for \$795.

Rickenbacher Called to Washington

DETROIT, May 26—Eddie Rickenbacher has been called to Washington for consultation regarding the starting of aviation practice work by the racing drivers' aviation corps which was formed through the efforts of Rickenbacher.

Rubber Makers Suggest Tax Not on Tires Alone

Would Have Only 5% Tax on All Goods with No Import Duty— No Action as Yet

WASHINGTON, D. C., May 29—While the Rubber Association of America is still opposing the tax on tires, nothing definite as a substitute tax has come from the Senate Finance Committee, which now has the revenue measure in hand.

The tax as originally proposed provided 5 per cent on tires and a 10 per cent import duty on crude, which had been on the free list. The rubber association proposes a 5 per cent tax on ALL rubber manufactures and not on tires alone, at the same time eliminating the 10 per cent import tax. It further recommended that no such tax be levied on articles for export. It is estimated that this would raise \$30,000,000.

In the hearing before the Senate Finance Committee it was shown that there are 300 manufacturers of rubber goods in the United States, and that the volume of business in 1917 was approximately \$600,000,000, of which \$250,000,000 was in tires. The rubber manufacturers expressed a willingness to pay the 5 per cent tax on the ground that the Government must have money and that the entire rubber industry was patriotic in its effort to co-operate with the Government.

The hearing brought out that truck tires is one of the great products of Akron, and these could not in any wise be considered a luxury. It was shown that the 5 per cent tax on tires and tubes was a tax on necessities, whereas such luxuries as toy balloons were not being taxed.

At the present there is not a pound of rubber growing under the American flag, and the submarine warfare has practically driven the rubber trade from the Atlantic to the Pacific Ocean. It now requires 90 days to get supplies of crude rubber to this country. The rubber association asked the Government to help the rubber industry to bank up stocks of crude rubber for the protection of the American public.

In drawing attention to the idea that automobile tires and tubes are luxuries, F. A. Sieberling, president of the Goodyear Tire & Rubber Co. said: "The concern I represent is probably making more pneumatic tires than any other company in the United States. Two-thirds of our business is in the villages and on the farms. The Middle West and the South constitute the great field in which we operate."

Gwilliam To Handle S. R. B.

NEW YORK, May 26—The Gwilliam Co. has taken the agency for S. R. B. bearings, its territory embracing the Metropolitan district. This company also has an agency in Philadelphia and handles all makes of ball, roller and thrust bearings.

\$800,000 a Day Needed To Keep Ford Running

**So Rapidly Are Materials Exhausted
That Plant Would Close Its
Doors If Halted 30 Days**

DETROIT, May 28—The Ford Motor Co. requires between \$800,000 and \$900,000 daily for running expenses. Assets are so ravenously consumed by the operations of the factory that if production were halted for 30 days the Ford company would be forced to close its doors. These were statements made by Frank L. Klingensmith, vice-president and treasurer of the Ford Motor Co., during the hearing of the Dodge-Ford suit Saturday.

With this testimony the Ford company sought to emphasize the point that the River Rouge smelter plant contemplated by Henry Ford and objected to by Dodge brothers, is necessary to manufacture iron directly from ore for use in the Ford products.

Klingensmith also stated that at the last meeting of the board of directors of the Ford Company, held May 1, 1917, a 50 per cent dividend was declared in opposition to James Couzens, who desired a 100 per cent dividend.

Horace H. Rackham, a director of the Ford Motor Company, stated that he did not believe in expanding the company's business without limit, but that the limit is so far away that he did not believe that anyone could fix it at this time. Under examination, Mr. Rackham admitted that he was not a practical man, and that he had little knowledge of the details of the Ford Company's organization.

C. Harold Wills, chief engineer of the Ford Company, testified his belief in the necessity for expansion. "I cannot see how we can meet next year's business," he said, "unless some of our building plans are carried forward immediately." It was shown by the records of the directors' meeting, February 2, 1916, that the Ford Motor Company sold its claims in the tractor business to Henry Ford personally for \$46,810. The company reserved the right, however, to go into the tractor business whenever it pleased and to use the name "Ford," although it did not interfere with Ford's using "Henry Ford."

Wills declared that Henry Ford had talked about producing 100,000 trucks this year, and that materials for 10,000 of them had been ordered four months ago. He also testified that there has never been enough room at the Ford plant to supply the demand, and that the company could have sold 100,000 trucks and 100,000 closed cars last year if it had had them.

Testimony developed that the last reduction in price cut the profits in half; but the company had made a profit of \$60,000,000 on 500,000 cars in 1915 and \$30,000,000 on 750,000 cars in 1916. He discussed the value of three working shifts a day, and said he wanted to eliminate the midnight to 8 a.m. shift because he was impressed by the number of men who complained, by the number of wives who complained, and by the general inefficiency demonstrated in those hours. The case has been continued to June 4.

Illinois Bill Slow in Passage

SPRINGFIELD, ILL., May 26—Although the Illinois gargaremen expected their lien law would get to a final vote in the legislature during their convention here this week, they were disappointed for the measure could not be dug out of the great mass of legislation that is encumbering the State's legal machinery. The bill has passed its second reading, and there is strong sentiment in favor of it, but speed seems unobtainable.

The convention, which was well attended, voted to retain all the old officers and to change the name to Illinois Automobile Trade Association, which conforms to the style of the National Automobile Trade Association.

Enger Sale Postponed

CHICAGO, May 26—Sale of the assets of the Enger Motor Car Co., which was to have been auctioned May 24 and 25 at Cincinnati, by Samuel L. Winternitz & Co., Chicago, has been postponed to June 5. Everything is to be sold including the real estate and the inventory value is given as \$500,000. The plant may be inspected on and after June 1 and it is expected the sale will be consummated in two days. The tools and machinery of each department will be sold in separate parcels.

Steamotor Personnel Announced

DETROIT, May 26—The Steamotor Truck Co., organization of which was announced last week, will include in its corporation the following individuals: Harry T. Weeks, capitalist, Chicago; W. O. Duntley, president Chicago Pneumatic Tool Co., Chicago; John T. Connery, president Miami Coal Co., Chicago; Fred S. Richmond, president Fred S. Richmond Machine Co., Salt Lake City; Robert M. Eastman, president W. F. Hall Printing Co., Chicago, and Adelor J. Petit, Abner Doble, vice-president of the General Engineering Co., Detroit, will also be a director.

All-Season Buys Page

MARSHALL, MICH., May 28—The All-Season Body Co. has taken over the factory and property of the Page Bros. Buggy Co. as was arranged under a contract entered into between these two concerns when the All-Season Body Co. was organized last December. It is stated that Page Bros. Buggy Co. has made liberal arrangements with the new concerns allowing an extended time for payment.

Eisemann on United Tractor

DETROIT, May 28—The United tractor, made by the United Motors Co. of Grand Rapids, Mich., will be equipped with the Eisemann magneto. In the description of these tractors which appeared in the May 9 issue of Motor World another system of ignition was specified. Since that time the Eisemann has been adopted.

Detroit Dealers Plan Used Car Show June 9

**Event Will Run Until June 16 and
Will Be Patterned After Chicago
and Milwaukee Shows**

DETROIT, May 28—The Detroit Automobile Dealers Association will stage a large used car exhibit and sale June 9-16. The dates allow the exhibit to be opened to the buying public on two Sundays. No car will be exhibited that is not equipped with electric lights and starter. Finish and tires must be up to a high standard and the association reserves the right to pass on all cars exhibited. The exhibit will be held in the Crosstown garage, which is in the center of the city and will house 300 to 350 cars. Each car will bear a tag telling the year and model, general description of its condition and the price. Cars which have been sold will be removed twice a day and dealers will have the right to replace these cars. Electric cars will be displayed in addition to gasoline pleasure cars and if space is available, a number of trucks and delivery cars will be exhibited.

Fuller Reincorporates His Business

BOSTON, May 26—Alvan T. Fuller, the Packard dealer, who controls the Eastern New England territory, has just incorporated his business as a \$1,500,000 company known as the Packard Motor Car Co. of Boston. There are 15,000 shares at \$100 each. Fuller is president; Pitt W. Danforth, treasurer and Robert B. Parker, secretary and general manager. Fuller is now a member of Congress, and he felt that it would be a better plan to incorporate so as to pass some of the multitudinous duties on to some of his employees.

Wescott Is Refined

SPRINGFIELD, O., May 28—The 1918 Wescott six is refined and slightly improved. The price has been raised to \$1,790 on the open models and to \$2,390 on the sedan. The chassis is slightly lower. A new type of one-man top which may be raised or lowered without effort, Blackmore door openers which enable the side curtains to open with the doors, and oil cups instead of grease cups are the principal changes. The bodies are still more attractive in line, and a detail improvement which adds to the good effect is the use of a body molding. The line consists of a seven-passenger with divided front seat, a four-passenger roadster and a seven-passenger sedan. Tires are 34 x 4½, non-skid in rear.

Allen Doubles Capacity

BUCYRUS, OHIO, May 26—The completion of a large addition to the Allen Motor Co.'s plant here doubles the capacity of the plant.

Porter Makes New Start in Field of High Price

**With New Capital and More of It
Will Begin at Once on 100 \$7000
Luxury Cars**

NEW YORK, May 25—A reorganization, together with an increase of capital, of the Finley Robertson Porter Co., Inc., Port Jefferson, L. I., has been completed. This widening of the activities of the company means a larger production and the introduction of additional capital to make this possible. The capital has been increased from \$100,000 to \$250,000 preferred stock of par value 100, carrying 8 per cent cumulative and 10,000 shares common of no par value.

Under the broadened plans of the company production has already been started on a run of 100 F. R. P. cars. The price for the seven-passenger touring car has been increased from \$6,000 to \$7,000. The new cars are different from the old models in that 16-valve engines are used; otherwise the general engine design is the same as formerly. Cylinder sizes are 4 6/10 x 6 3/4 and the wheelbase is 140 in.

Finley R. Porter, who has been the directing spirit of the company since its organization, is president under the reorganization. F. D. Veiller is vice-president; and R. C. Kay, of Pittsburgh, is secretary and treasurer. These men with Paul R. Towne, of Harris & Towne, attorneys, and J. S. Stubbs, comprise the board of directors. The plans of the company include opening offices in New York. It is expected that practically all of the retail sales will be largely confined to Greater New York.

Crew-Levick Holds Convention

PHILADELPHIA, May 25—The Crew-Levick Co. held its annual sales convention here the early part of this week. Various phases of merchandising and business were taken up, and there were several interesting discussions. It was announced by General Manager F. Royal Hammet that the 150 distributing stations of the Empire Refineries, Inc., principally in the West and Southwest, have been taken over by the Crew-Levick Co. Dinner was served at the Manufacturers' Club at 6 p.m. the first day. The second day's discussion covered the product.

Jobbers Against Check Collecting Charges

CHICAGO, May 26—The National Association of Automobile Accessory Jobbers is protesting against the Kitchin bill, which restores to country banks the right to charge for collection on checks. The Hardwick amendment, which covers the same ground, has been before the joint committee of the House and Senate and is now under consideration. If it is passed as presented all banks will be permitted to charge for collecting checks. The association views this as a step back-

ward and states that all pressure should be brought to defeat the bill. The measure is known as Senate Bill 1796.

Stewart Adds 2-Ton Model

BUFFALO, May 26—The Stewart Motor Corp. has enlarged its line to include a new model weighted at 2-tons capacity; this is to be designed Model 7. The complete line now includes four sizes. These are 1500-lb., 1, 1 1/2 and 2-ton. The new model is similar to its predecessors and is equipped with a Buda 4 1/2 x 5 1/2 motor, having Berling magneto ignition and a Zenith carbureter. Engine, clutch and gearbox are a unit. Drive is through a Celfor internal gear axle. The chassis is suitable for 10, 11 or 12-ft. bodies, and sells for \$1,975 in the lead and \$20 extra painted.

Howard Marmon Called to Aero Service

INDIANAPOLIS, May 28—Howard C. Marmon, president of Nordyke & Marmon, has been called to Washington to take complete charge of the development of motors for the army airplane service. Marmon has accepted the call of the Government and has been given the rank of captain.

Service Gets Quayle Output

CHICAGO, May 26—The Service Motor Supply Co. has contracted to handle the entire factory output of Quayle lock switches. The switch locks the ignition and is for application to 1914, 1915, 1916 and 1917 Ford cars.

Wisconsin Dealers Form Dirt Track Racing Body

**Will Supervise Contests in That
State—First Event Is Scheduled
for July 4**

MILWAUKEE, May 26—The Wisconsin Motor Contest Board is the name selected for the new association of Wisconsin dealers and others interested in dirt track racing, which will conduct its first meet on the one-mile track at State Fair Park in Milwaukee on July 4. Leslie D. Frint, Monroe distributor, has been elected president, and Bart J. Ruddle, secretary and manager. Ruddle is assistant secretary and manager of the Milwaukee Automobile Dealers, Inc. It is stated that the purpose of the contest board is to protect the interests of the owners of racing cars, drivers, and fair associations controlling dirt tracks, as well as the promoters of races. Every precaution will be taken to safeguard spectators by the adoption of stringent provisions controlling conditions during race meets.

Kent Motors Sees Trouble

BELLEVILLE, N. J., May 25—Two involuntary petitions in bankruptcy have been filed against the Kent Motors Co. Both petitions charge insolvency and place the company's liabilities at \$30,000. Both further allege that the concern has committed acts of bankruptcy in that it made preferential payments and disposed of assets within 4 months of the filing of the petitions. The company was incorporated in September, 1916, with capital stock of \$200,000.

Crew-Levick Men at Annual Sales Dinner



While it, of course, wasn't strictly business, the dinner of the Crew-Levick merchandisers was about the most popular event on the annual sales convention program

Things That Are Doing Among Men of Industry

New Work Calls Some to New Fields —Promotions Are Many on the Roll of Activities

Elbert E. Martin has resigned as a director of the Consolidated Truck & Tractor Co., Detroit. He is at present assistant secretary of the Detroit Section of the Society of Automotive Engineers.

H. G. Stewart of the Chalmers Motor Co. factory staff has been made service manager at the New York Chalmers branch.

Charles Lejuste, for more than four years with the Haynes Automobile Co., Kokomo, Ind., has resigned. He has not announced his future plans.

A. W. Milman, formerly with the Mitchell-Lewis Co., Racine, has been appointed assistant purchasing agent of the Haynes Automobile Co., Kokomo, to succeed T. C. Heady, who is now with the Smith Form-A-Truck Co.

W. I. Shaw, general sales manager of the Kentucky Wagon Mfg. Co., Louisville, has resigned owing to ill health, and will rest for several months before taking up connections with a large manufacturing company in New York.

S. M. Piper of Buffalo, N. Y., is the new manager of the Louisville branch of the Studebaker Corp. He succeeds Wilson M. Taylor, an efficiency expert, who has been in temporary charge of the branch since its establishment several months ago. Taylor will return to the general office of the Studebaker Corporation at South Bend, Ind.

J. T. Sandwich, for many years past purchasing agent of the F. A. Ames Co. and its two subsidiaries, the Ames Motor Car Co. and the Carriage Woodstock Co., Owensboro, Ky., has resigned and entered the employ of the Service Motor Supply Co., Chicago.

Samuel J. Green, who for some years past has been Western district general manager for the American Eveready Co., has been appointed general sales manager for the Detroit Battery Co., Detroit.

C. E. Farnsworth, former chief clerk in Dallas for the Pennsylvania railroad lines, has resigned and is now connected with the F. L. Shaw Automobile Co., Dallas.

J. F. Dunigan, formerly superintendent of service for the Lexington Howard Co., Connerville, Ind., has been appointed service manager of the Lexington Motor Co.'s service department at Dallas.

F. Connell, formerly with the Goodyear Tire and Rubber Co., has been appointed credit manager of the Dallas, Texas, branch of the Ajax Rubber Co.

Richard E. Tyler has been appointed sales manager of the H. L. Keats Auto Co., Portland, Ore., to fill the vacancy left by Chas. B. Harris, resigned. Tyler has been recently with the Western Moline Plow Co. of Salt Lake City, Utah. He will look after the sales of Chalmers and Peerless cars for which the Keats Auto Co. is distributor in Oregon and Washington.

J. L. Bergs, for several years a traveler for the Studebaker Corp., has joined the sales force of the Dorris Motor Car Co., St. Louis.

Nicholas Wilson has been appointed assistant traffic manager of the Haroun Motors Corp. He was at one time assistant traffic

manager in the E-M-F Co., and has also been with the Studebaker and Maxwell companies in similar positions.

G. E. Drawe, Jackson, Mich., assistant general manager of the Mutual Motors Co., has been elected to the board of directors and also treasurer of the company, succeeding W. T. Miller, former treasurer, who has resigned. Drawe will retain his duties as assistant general manager along with his new work.

Mitchell Mackie, prominent in the tractor and truck trade as sales engineer of the Waukesha Motor Co., Waukesha, has been called to the front as Captain of a motor truck squadron.

W. F. Sheehan has been appointed general manager of the Globe Motor Truck Co., St. Louis. C. T. Schaefer has become chief engineer. He was formerly chief engineer of the Mogul Truck Co.

R. T. Middleton, sales manager of the Michigan Electric Welding plant of the Steel Products Co., has enlisted and been appointed a sergeant and will drive for the headquarters staff of the first expedition to Europe.

C. Floyd Greene, for the past five years connected with the sales department of the Cadillac Motor Car Co., Detroit, has been made president and general manager of the York Garage & Service company, York, Pa.

Motor Securities

	May 26, 1917	
	Bid	Asked
*Ajax Rubber Co.....	70	72
*J. I. Case T. M. Co. pfd.....	84½	86
Chalmers Motor Co. com.....	7	12
*Chandler Motor Car Co.....	91½	94
Chevrolet Motor Co.....	97	102
Fisher Body Corp. com.....	32	36
Fisher Body Corp. pfd.....	87	92
Fisk Rubber Co. com.....	73	76
Fisk Rubber Co. 1st pfd.....	103	106
Fisk Rubber Co. 2nd pfd.....	92	95
Firestone Tire & Rubber Co. com	128	133
Firestone Tire & Rubber Co. pfd	106	108
*General Motors Co. com.....	109	110
*General Motors Co. pfd.....	88	89
*B. F. Goodrich Co. com.....	52	53½
*B. F. Goodrich Co. pfd.....	106½	107½
Goodyear Tire & Rubber Co. com	208	212
Goodyear Tire & Rubber Co. pfd	106	108
Grant Motor Car Corp.....	4	6
Hupp Motor Car Corp. com.....	2	4
Hupp Motor Car Corp. pfd.....	74	80
International Motor Co. com.....	6	10
International Motor Co. 1st pfd.	30	50
International Motor Co. 2nd pfd.	10	20
*Kelly-Springfield Tire Co. com.	50	53
*Kelly-Springfield Tire Co. 1st pfd	87	94
*Lee Rubber & Tire Corp.....	17½	18½
*Maxwell Motor Co., Inc., com.	50½	51
*Maxwell Motor Co., Inc., 1st pfd.	66	68
*Maxwell Motor Co., Inc., 2nd pfd.	31½	32
Miller Rubber Co. com.....	196	200
Miller Rubber Co. pfd.....	104	106
Packard Motor Car Co. com.....	151	151
Packard Motor Car Co. pfd.....	99	99
Paige-Detroit Motor Car Co.....	28	30
Peerless Truck & Motor Corp.....	13	16
Portage Rubber Co. com.....	150	155
Regal Motor Car Co. pfd.....	24	24
*Reo Motor Car Co.....	28½	29½
*Saxon Motor Car Corp.....	37½	38½
Springfield Body Corp. com.....	52	57
Springfield Body Corp. pfd.....	110	117
Standard Motor Construction Co.	13½	14½
Standard Parts Co.....	70	87
*Stewart-Warner Speed. Corp.....	73	74
*Studebaker Corp. com.....	86½	87
*Studebaker Corp. pfd.....	102	105
Swinehart Tire & Rubber Co.....	65	70
United Motors Corp.....	31½	31½
*U. S. Rubber Co. com.....	57½	58
*U. S. Rubber Co. pfd.....	105	106
*White Motor Co.....	45½	46
*Willis-Overland Co. com.....	29½	29½
*Willis-Overland Co. pfd.....	92½	94

*At close, May 26, 1917. Listed N. Y. Stock Exchange.

+Par value \$10.

Dan C. Swander has been made director of sales of the Standard Parts Co., Cleveland, Ohio, with headquarters at the executive offices, Hickox Building, Cleveland.

Horace H. Newsom has been made director of purchases of the Standard Parts Co., Cleveland, Ohio.

J. H. Liston has been appointed manager of the jobbing division of the Standard Parts Co., Cleveland, Ohio. He was western manager of the Thermold Rubber Co.

W. H. Allen has been appointed sales representative of the United Smelting & Aluminum Co., New Haven, Conn.

William T. Brush, assistant sales manager of the Studebaker Corp., Detroit, has resigned and has purchased a one-half interest in the Philadelphia Sales Corp., distributor of the Studebaker.

Mathew Farrell, New York representative of the Duplex Engine Governor Co., as sales engineer, has been ordered to Fort Sam Houston, San Antonio, Tex., as captain of the Quartermaster's Department, of the Officers' Reserve Corps, in the army transport and similar motor truck service work.

E. O. Paterson has been elected president of the Hudson-Phillips Motor Car Co., St. Louis, succeeding John H. Phillips, who recently resigned. Phillips was formerly district manager for the Hudson Motor Car Co. of Detroit, and was connected with that company for 6½ years.

M. R. McAdoo, Jr., and W. A. Coleman, both of the sales department of the Chevrolet Motor Co., New York, and M. J. Corray, of the material department, have gone to Plattsburg, N. Y., as members of the Officers' Reserve Corps.

Martin Murray is now in charge of the sales organization of the Corcoran Mfg. Co., Cincinnati.

C. T. Myers, Detroit, who has been doing consulting work with the government in connection with the drafting of the specifications for the war department trucks, is having several calls from transmission, axle and truck manufacturers for information as to methods of procedure in meeting the government requirements for the tractive factor.

H. G. Fides has been appointed director of service of the Willys-Overland Co., Toledo. K. R. Jacob, formerly service manager, has been appointed assistant sales manager.

Martin Murray has become affiliated with the Corcoran Mfg. Co., Cincinnati. He will cover the central states.

Victor W. Kilesrath, for many years chief engineer of the Bosch Magneto Co., New York, has severed his connection with the company. He has not yet made public his plans for the future.

S. O. DeOrlow has resigned as engineer of the Woods Motor Vehicle Co., Chicago, to become chief engineer of the Oak Mfg. Co.

H. W. Scholl, for the past four years associated with the sales department of the Splittdorf Electrical Co., Newark, N. J., has been appointed Eastern representative of the company. His headquarters will be in Newark.

Henry F. Russell has been made sales manager of the grey iron foundry department of Farrar & Trefts, Inc., Buffalo. Formerly he was connected with the Lumen Bearing Co.

C. J. Fox has joined the Puritan Machine Co., Detroit, in a special capacity. He was formerly service manager for the Hupp Motor Car Corp., Detroit.

George A. Drawe, assistant general manager of the Mutual Motor Co., Jackson, Mich., has been elected to the board of directors and treasurer of that company.

Los Angeles Trade Has Had Pretty Good Year

Association Has Done Things and So All The Old Officers Get Their Jobs Back

LOS ANGELES, May 25—The Motor Car Dealers' Association of Los Angeles last week re-elected the entire list of officers. The association is governed by the following: Harold L. Arnold, president; Volney S. Beardsley, vice-president; Harris M. Hanshu, secretary; Ralph C. Hamlin, treasurer, and the directors are, besides the officers, P. A. Lord, Perry H. Greer and Clarence Smith.

Chief among the accomplishments during the year was the holding by the dealers' association of an automobile show that was the biggest and most successful in the history of the trade and was conducted more economically than any previous exposition. Thirteen thousand dollars was distributed among the exhibitors, bringing the net cost for space down to 4 cents a square foot, compared with 50 cents a square foot a year ago, when the dealers did not conduct their own show.

Decision by the association to manage its own show resulted in an increase in membership from sixteen to sixty, making it the biggest automobile dealers' association in the United States.

An amalgamation was formed with the motor truck dealers of Los Angeles, which broadens the scope of the association. Very effective work was done by the association in combating drastic legislation affecting the commercial and passenger car business.

Sixteen automobile bills were introduced in the California legislature, and through the aggressive opposition of the Los Angeles association, working harmoniously with the San Francisco dealers, fifteen of the obnoxious bills were defeated and the sixteenth amended to the satisfaction of the motor trade. It was the first time in their history that the motor interests of Los Angeles and San Francisco were brought together into one smooth working machine, and now they are the main cogs in the newly formed Pacific Coast Motor Car Dealers' Association.

The scope of the association's activities has extended beyond the automobile industry, for co-operation of the trade has been sought by the Los Angeles Chamber of Commerce and the Merchants' and Manufacturers' Association in various matters.

Export Gasoline Goes Up

NEW YORK, May 25—Prices on gasoline for export have been advanced 2 cents a gal. by the principal refining interests. Gasoline for foreign shipment is now 36¼ a gal. for the 68-72 grade in ten to ninety-nine cases, there being 9¼ gal. to a case. In 100 to 199 case lots, the price is 36 cents, and in 200 to 299

case lots, 35½ cents. The 72-76 grade per gal. in the ten-ninety-nine case lot is 40¼. The other two lots are 40 and 39½ cents respectively. This is the first change that has been made in quotations of any of the refined products for several months and is attributed to the continued heavy foreign demand in conjunction with the growing acuteness of the situation with reference to supplies. Another important reason for the rise is the present shortage of labor.

Thirteenth Market Report Out

CHICAGO, May 29—The thirteenth quarterly National Used Car Market Report has just been issued by the Chicago Automobile Trade Association. The book is issued in its usual form, with resale—as is and overhauled—for the first three months of 1917 and appraisal values for the present period.

Used Car Show for Minneapolis

MINNEAPOLIS, May 26—The Minneapolis Automobile Trade Association will stage a used car show in July and is negotiating for 5 floors of a store and office building under construction. Each entry will be inspected and will carry a 7 day guarantee when sold. Sales may be removed each night at 6 o'clock. Persons who have not obtained free tickets from dealers will pay 25 cents for entrance. The executive committee in charge is: H. E. Pence, F. E. Murphy, J. A. Graham, B. E. Stimson, D. A. Odell.

Davis Heads Duluth Dealers

DULUTH, May 26—Alexander H. Davis has been re-elected president of the Duluth Automobile Dealers' Association. Other officers elected are: Vice-president, H. B. Knudson; secretary, L. H. Filiatrault; assistant secretary, Leonard McNamara; treasurer, J. F. Stafford.

A. A. A. Traffic Committee to Help Government

CLEVELAND, May 26—A motor car transportation committee was appointed at the annual meeting of the American Automobile Association yesterday. The committee will render every assistance possible to the government both in the matter of transportation and in the sale of Liberty bonds. A day is to be set aside, probably June 7, and designated as A. A. A. Liberty Bond Day, and car owners and dealers will be requested to devote the day to increasing the sales of Liberty bonds. Dr. H. M. Rowe was re-elected president, other officers elected being: Vice-presidents, Ralph W. Smith, Colorado; T. J. Walker, California; D. Jameson, Pennsylvania; Royal Scott, Ohio; A. J. Lupton, Indiana; Preston Beldin, Virginia. Treasurer, H. A. Bonnell; secretary, John A. Brooks; chairman of executive committee, A. G. Batchelder. Directors: W. L. Hammond, Delaware; C. E. McFail, Maryland; F. H. Caley, J. H. Quayle, Ohio; Elmer

Women Doing Shop Work in Wisconsin Factories

Making Cores in Nash Plant—On Mica-Winding and Other Light Work in Many Shops

MILWAUKEE, May 26—The employment of women in places that always have been occupied by men is having exceptional growth in Wisconsin, and the motor car industry is taking an important part in the pioneering work that must be done to provide for the possible contingency of a great shortage of male labor growing out of the war.

A special report on woman labor in workshops has just been issued by the Industrial Commission of Wisconsin. It says that the Nash Motors Co., Kenosha, Wis., already has started to place women in its core-room. In Milwaukee, the Cutler-Hammer Mfg. Co., Geuder, Paeschke & Frey Co., and other large concerns closely identified with the motor car, parts and equipment industry not only are employing women in the shops in places usually filled by men, but they are advertising in the newspapers for more women for such purposes. The Allis-Chalmers Mfg. Co., Milwaukee, now employs a large number of women on mica-winding and other electrical construction of a light nature.

It is stated that the reduction of the output of confections, due to economizing by consumers, has released hundreds of girls and women to other industries. There are no restrictions regarding employment of women in Wisconsin, excepting that prohibiting their employment in mines and quarries. Women may work in practically every field of endeavor, and the Industrial Commission announces that it is ready to assist employers in obtaining female help.

Hough, West Virginia; J. L. Garvin, M. E. Noblet, Indiana; J. W. Maguire, Henry Paulson, Illinois; S. W. Richardson, North Dakota; J. E. George, Nebraska; R. F. Britton, Missouri; E. Metzger, Michigan; J. C. Scales, Maine; C. H. Greene, Vermont; G. W. McMean, J. Fortesque, R. Shirley, Massachusetts; A. Fifott, Connecticut; F. M. Baucus, A. W. Seaman, J. M. Ross, D. H. Lewis, F. R. Smith, F. G. Webb, New York; Dr. J. N. Falkner, A. W. Turton, W. M. Sweet, New Jersey; Steadmond Bent, P. C. Wolff, R. C. Richardson, F. B. Bosch, B. C. Attil, Pennsylvania.

Revere To Start July 15

INDIANAPOLIS, May 28—The Revere Motor Co., Logansport, Ind., will begin production of the new Revere car July 15. The company last week bought a large factory site and work on constructing a plant will be started within the next two weeks.

Intercity Reliability To Be Run by the "3 A's"

Will Start From Buffalo and Make Circuit of Empire State's Southern Tier

CLEVELAND, May 25—Following the meeting of the American Automobile Association, arrangements for the Intercity Reliability Run were discussed and arranged. The schedule is as follows:

First Day	Miles
Buffalo to Danville (noon control)....	96.0
Danville to Elmira (night control)....	92.4
Total	188.4

All of the road on the first day's journey is improved state road except 24.1 miles of dirt road between Danville and Elmira.

Second Day	Miles
Elmira to Norwich (noon control)....	104.3
Norwich to Syracuse (night control)....	105.3
Total	209.6

All of the journey of the second day is over state road except 21.9 miles, which is divided so that 11.9 miles will be travelled in the morning and 10 miles in the afternoon.

Third Day	Miles
Syracuse to Rochester (noon control)....	98.8
Rochester to Clarence County Club....	74.4
Total	173.2

This journey is entirely over improved state road. Hotel and garage service has been investigated and arranged for. Each contestant will have to provide an observer in a car other than the contestant. There will be brake tests made the day before the run, for safety purposes. Fifty entries have been received to date. These include:

	Men	Cars
Chicago	10	10
Indiana	5	5
Detroit	10	10
New York	10	10
Rochester	5	5
Buffalo	10	10

Other cities which it is expected will make entries for the run are Cleveland, Boston, Syracuse, Elmira and Utica.

Denver Dealers Appoint Traffic Committee

DENVER, May 26—To help secure greater co-operation between dealers and police officials in the interest of traffic safety in Denver, a special grievance committee has been appointed by the Automobile Trades Association of Colorado to handle cases of minor traffic violations reported by police against members of the trades body. This action was taken at the suggestion of Traffic Sergeant Robert W. Thompson, who is working hard upon a campaign of organized education relative to traffic rules, their needs and purposes and the obligation of the public to aid their obedience for the welfare of everybody using the streets and highways.

Maxwell Has Record Sales

DETROIT, May 25—Sales of the Maxwell Motor Co. during the first 3 months of 1917 were more than 58 per cent larger than the corresponding period of the preceding year. The total for the quarter was 19,000, an increase of 6968 over the first quarter of 1916. It is anticipated that there will be a surplus account of \$600,000, after paying the usual dividends of \$3,000,000 and a possible government tax of between \$500,000 and \$600,000.

Cincinnati's 250-Mile Race Draws 27 Drivers

Big Event Will Be Supplemented By 2 Mile for Fords and a 30-Mile Free-For-All

CINCINNATI, May 26—Twenty-seven drivers have entered in the 250-mile race scheduled for the speedway here on May 30. In addition to the principal event there will be two others, a 20-mile race for Fords and a 30-mile free for all. These will precede the big race, which will start at 2:30. Following are the starters for the 250-mile event:

De Palma	Packard
Oldfield	Oldfield-Delage
Cooper	Stutz
Mulford	Hudson
Vall	Hudson
Henderson	Mercer
Thomas	Mercer
Haines	Mercer
Hearne	Duesenberg
Taylor	Newman Sp.
Fontaine	Mercedes
L. Chevrolet	Frontenac
Boyer	Frontenac
Stringer	M. E. L. Sp.
De Vigne	Delage
LeCain	Delage
Ewan	Crawford
McCord	Crawford
Monahan	Johnson Sp.
Toft	Omar
Burt	Erbes Sp.
Lewis	Hoskins Sp.
Ostewig	Ostewig Sp.
Buzane	Duesenberg
Milton	Duesenberg
McNay	McNay Sp.

Lavine to Treble Production

RACINE, May 26—The Lavine Gear Co. has foundations practically completed for an addition to its plant which will treble production.

Pacific Coast Forming Big Association

SAN FRANCISCO, May 26—After several months of consideration, correspondence and discussion, steps have been taken to form the Pacific Coast Motor Car Dealers' Association. This will include but not supplant the dealer organizations in San Diego, Los Angeles, San Francisco, Portland and Seattle.

Salt Lake dealers later will be asked to affiliate, and inasmuch as California distributors control practically all the business in Nevada and Arizona, this eventually will become a most comprehensive association.

Already some of these distributors have sales rights in Montana and Wyoming, so that eventually the association will represent practically the entire United States west of the Rocky Mountains with the exception of the Philippine Islands, Hawaii now being under California jurisdiction for some lines of cars.

Prominent in bringing about the association were William L. Hughson, San Francisco, president of the Pacific Kissel-Kar Co., and Harold L. Arnold, Los Angeles, president of the Los Angeles

Motor Car Dealers' Association. The two have worked for months and spent liberally of their private means for the purpose.

Because of its central geographical location, San Francisco was selected as the headquarters of the newly formed body, and the following prominent tradesmen in that city were elected as temporary officers: President, J. A. Marsh; vice-president, Chester R. Weaver; secretary, T. A. Skinner; treasurer, Frank O. Renstrom.

The temporary executive committee consists of J. A. Marsh, president of the San Francisco Motor Car Dealers' Association; Harold L. Arnold, president of the Los Angeles association; Clarence McCabe, president of the San Diego association; M. O. Wilkins, president of the Portland association, and A. G. Schaeffer, president of the Seattle association.

The temporary officers will prepare by-laws and submit them to the various dealers organizations represented in the coast association, and a meeting will be called in the near future, at which will

be present delegates from Seattle, Portland, San Francisco, Los Angeles and San Diego trade bodies. Permanent officers will then be elected.

It is not intended that there will be any dues attached to membership in the coast association, but each association member will pay the expenses of its representatives who are selected to attend the various meetings that will be necessary from time to time.

An officers in the new association said that in the matter of good roads, transportation and motor shows, the automobile industry on this side of the continent each year faces numerous complex problems, and unity of action and exchange of ideas will bring about quicker and more beneficial solution of the problems.

A strong defense now exists against drastic legislation such as was aimed at the trade in the California legislature recently, and the forces of the dealers in the three States will be so organized that constructive measures will be vigorously supported.

Texas Believes Future Holds Big Sale of Cars

Crops Generally Are Coming Well—Labor Shortage Will Be Felt at Harvest

AUSTIN, TEX., May 26—Whatever falling off in automobile sales to the people of the cities and towns of Texas there may have been during the last few weeks has been more than made up by increase of orders for cars from farmers and ranchmen, according to the statements of dealers. It is stated that the bright crop prospects which now exist in nearly every portion of the state are serving as an incentive for a great many farmers to buy. The cattle and sheep interests are also unusually prosperous at this time and the trade among these classes of pastoral people is larger than ever before.

The small decline in sales in the cities and towns is believed to be due to a temporary depression or rather uncertainty which will be soon overcome. Industrial interests generally were never more prosperous in Texas. All lines of manufacturing plants are working full time, including the lumber mills, which had been in a state of partial stagnation for several months. The demand for motor trucks for industrial plants shows a marked increase.

Plant Condition Good

Although the cotton crop in this state is about 2 weeks late, the condition of the plants is, as a whole, good, according to reports received here from various localities covering practically all of Texas. The prolonged drouth in the lower Gulf coast territory that threatened to prevent any cotton production this season has been broken during the last 2 weeks by bountiful rains and planting that was long delayed has taken place.

The fact that the growing season in that latitude continues practically throughout the year, there is yet ample time in which to make a good cotton crop, provided, of course, the region is visited by timely rains. In Central Texas there has been an excess of precipitation and as a result many of the fields are in grassy condition. The plants, however, are thrifty and if a period of fair weather occurs the crop will soon be placed in prime condition.

In north Texas prospects for a good yield are unusually promising and the same is true as to east Texas, although the boll weevil pest is a serious menace to the crop in that part of the state. In western Texas planting of cotton is practically finished and a good season has been placed in the ground by the recent rains.

While it cannot be said with exactness as to the increase of cotton acreage in this state this year, it is conservatively estimated that it is probably 8 to 10 per cent above what it was last year. There was some cutting down of the acreage in

central and northern Texas, where more attention than usual is being given to the growing of grain and food crops. In western Texas, however, the increase of cotton acreage is enormous. In some counties this increase amounts to more than 100 per cent.

The labor situation is a source of uneasiness to many planters due to the fact that thousands of Mexicans who were employed in the agricultural districts of the state have returned to their native country during the last few weeks. Thousands of negroes have also emigrated to northern states where they are attracted by the offer of better wages in industrial plants and upon railroads.

Farm Labor Shortage Serious

Difficulty is already being experienced upon many farms and plantations in obtaining sufficient labor to do the cotton chopping. It is stated that probably a sufficient number of hands may be obtained to do the cultivating of the crop, but that a most serious problem will arise when it comes to harvesting. Of late years many thousands of Mexicans have been brought each cotton picking season into the interior portions of the state from the border and served to supply the labor demand. Present indications point to a cutting off of this source of supply this year.

The wheat harvest is now on in north Texas. It is estimated that the crop yield will be approximately 18,000,000 bushels as compared with about 12,000,000 bushels last year.

The oats crop is almost a failure in Texas, except in a few favored sections where there were good winter rains. The shortage of this grain, however, will be largely made up by the planting of increased acreage of sorghums and other forage crops.

The corn crop is looking well, taking the state as a whole, although it is also about 2 weeks late.

The recent rains have been of much benefit to the rice crop and there promises to be a big increase in the yield of that grain in Texas this year.

Estimates of State Yield

Estimates of what this state will probably give in the way of yields of different products this year may be summed up as follows:

Product	Estimated Output
Corn	200,000,000 bus.
Watermelons	100,000,000
Cantaloupes	80,000,000
Poultry	65,000,000 lb.
Eggs	45,000,000 doz.
Peanuts	25,000,000 bu.
Wheat	18,000,000 bu.
Rice	15,000,000 bu.
Fish	10,000,000 lb.
Fruit	10,000,000 bu.
Honey	8,000,000 lb.
Vegetables	6,000,000 tons
Sweet potatoes	5,000,000 bu.
Hogs	4,000,000 head
Cotton	4,000,000 bales
Cotton seed products	2,500,000 tons
Beef cattle	2,000,000 head
Molasses	2,000,000 gal.
Sheep	200,000 head

Mexico Picking Up as Motor Truck Market

Big Business Anticipated as Soon as Things Are Normal—Burro to Have Fast Rival

LAREDO, TEX., May 28—An unexpected and rapidly growing demand for motor trucks is coming from Mexico and many carloads of these vehicles have entered that country through the El Paso, Eagle Pass and Laredo ports of entry during the last 3 or 4 weeks. The shipments are constantly increasing, the demand coming chiefly from the larger mining companies that are reopening their respective properties.

Most of the orders for motor trucks for Mexico shipment are placed with dealers in cities and towns on or adjacent to the Rio Grande, particularly San Antonio and El Paso. Recently a mining company that operates a large property in the State of Chihuahua placed an order for eight trucks and the vehicles were promptly shipped.

Heavy Truck Business Anticipated

It is stated by the American representatives of different truck manufacturing companies who have been on trade trips into Mexico during the last few weeks that everything points to a heavy business in this line in that country as soon as normal conditions are restored there. All of the larger foreign-owned mining companies plan to utilize trucks instead of the slow-moving burro wherever the roads are good enough to afford the operation of the motor vehicles. The motor truck has had its development chiefly during the last 6 years that mining operations in Mexico have been suspended.

Oil Companies Installing Motor Trucks

In the oil producing territory around Tampico many American companies are installing motor trucks for the transportation of supplies and lighter machinery to the different camps.

Naturally, native Mexican business interests are as yet not doing much buying of motor trucks, but it is expected that a demand for these vehicles from this source will be created later on, as the financial condition of the country improves. The field for the sale of both motor trucks and delivery vehicles in the different cities and towns, mining camps, oil fields and industrial centers of that country is practically a virgin one.

Reinhard Now All Wholesale

MINNEAPOLIS, May 26—Reinhard Bros. Co. has discontinued selling at retail and hereafter will confine itself to wholesale trade and electrical service work. The company has just moved into a new building at 11 Ninth Street, four stories and basement. Ninety employees work in the building and there are 18 men on the road.

CAR	Model	Price	Engine	Transmission	Drivetrain	Weight	Capacity	Notes
ALFA ROMEO	4-325 19.6 DeLoe	945	945	1945	DP 3 115 32x4	SS	...	...
ALFA ROMEO	6-3 24 21.6 Remy	1065	965	...	DP 3 115 32x4	...	...	...
ALFA ROMEO	4-325 24.0 A-Kent	...	645	...	D 3 110 30x3 1/2	C	...	...
ALFA ROMEO	4-325 24.0 Conn	1105	1125	...	DP 3 115 32x4	SS	...	...
ALFA ROMEO	6-325 24.0 Conn	1285	1315	...	DP 3 120 34x4	SS	...	...
ALFA ROMEO	4-325 24.0 Bosh	...	5500	...	D 4 140 35x5	QDC	...	...
ALFA ROMEO	4-325 23.5 Own	345	360	...	D 3 100 30x3 1/2	C	...	...
ALFA ROMEO	6-325 25.3 A-Kent	1900	1950	...	Dynaco D 3 115 32x4	SS	...	...
ALFA ROMEO	6-325 22.4 Weths	...	1205	...	Weths D 3 119 24x4	SS	...	...
ALFA ROMEO	6-325 21.6 Remy	375	375	...	Stumbg Wagner C 3 112 32x4	SS	...	...
ALFA ROMEO	12-325 39.7	2600	2600	...	Stumbg Wagner C 3 112 32x4	SS	...	...
ALFA ROMEO	6-325 21.6 A-Lite	1115	1180	...	Stumbg Weths D 3 122 34x4	SS	...	...
ALFA ROMEO	6-325 23.4 Weths	1285	1285	...	Stumbg Weths C 3 106 30x3 1/2	...	...	...
ALFA ROMEO	4-325 29.4 Remy	1995	1795	...	Radf L-N DP 3 121 34x4	SS	...	...
ALFA ROMEO	6-325 29.4 Remy	1175	2005	...	Radf L-N DP 3 121 34x4	SS	...	...
ALFA ROMEO	12-325 36.3 DeLoe	1225	2225	...	Radf L-N DP 3 127 34x4	SS	...	...
ALFA ROMEO	6-325 21.6 Remy	...	965	...	Stewart A-C C 3 115 32x3 1/2	SS	...	...
ALFA ROMEO	6-325 23.5 A-Kent	1115	1185	...	Stewart A-C C 3 115 34x4	SS	...	...
ALFA ROMEO	6-325 29.4 DeLoe	1650	1750	...	DeLoe D 3 124 35x4	SS	...	...
ALFA ROMEO	4-325 22.5 A-Kent	1285	1285	...	Weths D 3 119 34x4	SS	...	...
ALFA ROMEO	4-325 22.5 A-Kent	...	1440	...	Weths D 3 134 35x4	SS	...	...
ALFA ROMEO	4-325 19.6 Remy	875	925	...	Schubler Remy C 3 110 32x4	SS	...	...
ALFA ROMEO	8-3 23 26.8 A-Lite	1305	1395	...	A-Lite DP 3 118 34x4	SS	...	...
ALFA ROMEO	8-3 23 26.8 A-Lite	...	1195	...	A-Lite DP 3 112 32x4	SS	...	...
ALFA ROMEO	4-325 22.5 DeLoe	1005	1005	...	Bijur DP 3 116 34x4	SS	...	...
ALFA ROMEO	6-325 29.4 DeLoe	1435	1465	...	Bijur DP 3 126 34x4	SS	...	...
ALFA ROMEO	6-325 29.4 Bosh	1795	1795	...	Bijur DD 3 127 35x4	SS	...	...
ALFA ROMEO	8-3 25 28.8 A-Kent	1155	1700	...	Bijur DP 3 120 34x4	SS	...	...
ALFA ROMEO	6-325 31.54 Eiman	1750	...	...	Own DD 3 128 34x4	SS	...	...
ALFA ROMEO	6-325 25.3 Remy	11205	1205	...	Own C 3 117 34x4	SS	...	...
ALFA ROMEO	12-325 39.7 DeLoe	...	2250	...	Own DD 3 ... 34x4	...	...	...
ALFA ROMEO	6-325 25.3 Weths	1275	1295	...	Radf Weths DP 3 120 34x4	SS	...	...
ALFA ROMEO	6-325 25.3 Conn	11255	1255	...	Radf Weths DD 3 116 32x4	QD	...	...
ALFA ROMEO	6-325 40.8 A-Kent	...	2875	...	Radf Weths C 3 144 36x4	QD	...	...
ALFA ROMEO	6-325 25.4 DeLoe	11195	1195	...	Stumbg DeLoe DP 3 115 32x4	SS	...	...
ALFA ROMEO	6-425 43.3 Berling	15150	2000	...	Ball Weths DD 4 139 37x5	QDC	...	...
ALFA ROMEO	6-425 46.6 Berling	16050	5950	...	Ball Weths DD 4 143 37x5	QDC	...	...
ALFA ROMEO	4-425 28.9 Bosh	...	1605	...	Stewart G & D D 4 120 35x4	SS	...	...
ALFA ROMEO	6-325 36.0 Eiman	...	2775	...	Radf G & D D 3 122 35x4	SS	...	...
ALFA ROMEO	6-325 33.7 Bosh	...	1650	...	Schubler Bosh DD 122 35x4	SS	...	...

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leeco-Neville, "T" Tiltonson, "A-Z" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myer. NOTE—37 1/2 5 1/4 means that the rear tires are 37 1/2 x 5 1/4, and the front are smaller.

Peerless Breaks Shipping Records

CLEVELAND, OHIO, May 26—The Peerless Motor Car Co. is making record shipments of trucks and has shipped an average of 80 trucks a week since the first of January.

Got Any Oil Cans?

EL PASO, TEX., May 25—Empty 5-gal. oil cans are worth 50 cents each here, according to local oil dealers, who formerly bought that size receptacles in quantities, bearing lithographed labels, for filling from barrels and tank cars. The former price was 21 cents per can. Several oil men say cans cannot be obtained at any price.

Used Car Show in Calumet

CALUMET, MICH., May 26—The first used car show ever held in the Upper Peninsula of Michigan was that conducted in the Coliseum rink from May 15 to 17, inclusive. About 100 cars were exhibited and sales were satisfactory. The show was managed by Copper Country dealers and admission was free. A new feature was introduced by the holding of an auction once a day.

30,000 Goodrich Tires a Day

AKRON, May 26—The B. F. Goodrich Co.'s tire department is producing close to 30,000 tires a day, working on a 24-hr. day schedule. Continuous relays are run from Sunday midnight until midnight Saturday. Earnings of the company are

running about even with a year ago. For the 12 months ended Dec. 31, 1916, net was equal to \$12.76 a share for the \$60,000,000 common, after the preferred dividends, as compared with \$17.17 a share in 1915 and \$5.50 a share in 1914.

Tire contracts with the automobile makers are running a little lower than last year. As a result the company is in a more fortunate position as regards taking care of its direct trade requirements, which are heavy. The expansion program has been completed, and there is little likelihood of any further heavy expenditures for plant additions for some time.

Grand Rapids Boosts Sane Business

GRAND RAPIDS, MICH., May 26—The Automobile Business Association of Grand Rapids, in an effort to promote a feeling of stability through its territory, has mailed in unmarked envelopes 5000 copies of "War a Business Stimulant," written by K. P. Drysdale, Cadillac factory advertising man. The statement was signed by Drysdale but not even the name Cadillac appeared on it. The postage, addressing and envelopes cost the association \$73.10.

Holley Vaporizers for England at Cost

DETROIT, May 28—The Holley Bros. Co. is arranging to establish a plant at Coventry, England, where it will manufacture kerosene vaporizers for Ford tractors at cost and without profit for the English government. Arthur Dugrey, a member of the company, arrived

at Coventry several days ago and is now completing the arrangements which provide for production within the next 60 days. Holley Bros. Co. is making this move in harmony with the Ford Motor Co., which is now furnishing men, tools and tractors to the British government at cost.

Government Picks Joy Field

DETROIT, May 28—The United States Government war department has formally taken over by lease the Henry B. Joy aviation field near this city. Work of erecting new buildings for the aviation corps will be begun this week.

E. & J. Business Increasing

DETROIT, May 28—The Edmonds & Jones Corp. is enjoying a rapidly increasing business. The use of farm tractors by night has resulted in large numbers of orders for lamps.

British Adopt Ford Tractor

DETROIT, May 28—The English Ministry of Munitions has adopted in entirety Ford's tractor and is asking all manufacturers concerned to operate loyally in manufacturing the standardized product. Ford's engineers are under the direction of Charles E. Sorensen, who is issuing blueprints to the different manufacturers with instructions to begin work on tractor production immediately. The War Agricultural Committee recommended the adoption of the Ford tractor after testing it a week continuously, day and night.

Coming—THE SHOW CALENDAR—Events

Shows

Montreal, Can.....	Used Car Show, Coliseum.....	June 20-27
	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Spokane, Wash.....	Interstate Fair.....	Sept. 2-9
Milwaukee, Wis.....	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Peoria, Ill.	Peoria Exposition and International Farm Congress and Soils Exposition, tractor display and demonstrations.	Sept. 18-29
Dallas, Tex.....	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-23
Washington, D. C....	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-13

General and Racing

Cincinnati, O.	250-mile Race.....	May 30
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	May 30
Walla Walla, Wash.....	Track Race, R. A. Hiller, Mgr.	May 30
Hot Springs, Va....	Summer Meeting, National Association of Automobile Accessory Jobbers, Homestead Hotel.	June 4-5-6
Chicago, Ill.....	Championship Race.....	June 9
Detroit	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.	Race	June 23
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.....	Championship Race	July 4
Tacoma, Wash.....	Championship Race	July 4
Visalia, Cal.....	Road Race	July 4

Spokane.....	Track Race, R. A. Hiller, Mgr.....	July 4
Benton Harbor, Mich..	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.....	Hill Climb	July 14
Des Moines, Ia.....	Championship	July 14
Missoula, Mont.....	Track Race, R. A. Hiller, Mgr.....	July 15
Buffalo, N. Y.....	Intercity Reliability.....	July 17-19
Intercity Reliability...	American Auto. Assn.....	July 17-19
Anaconda, Mont.....	Track Race, R. A. Hiller, Mgr.....	July 22
Great Falls, Mont.....	Track Race, R. A. Hiller, Mgr.....	July 29
Billings, Mont.....	Track Race, R. A. Hiller, Mgr.....	Aug. 5
Fremont, Neb.....	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J....	Track Race	Aug. 17
Elgin, Ill.....	Road Race	Aug. 18
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.....	Championship	Sept. 3
Red Bank, N. J.....	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.....	Hill Climb.....	Sept. 8
Providence, R. I.....	Championship	Sept. 15
Allentown, Pa.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
Uniontown, Pa.....	Speedway Races	Sept. 30
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.....	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.....	Race	Oct. 13
Richmond, Va.....	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 10

New York, June 6, 1917

Ten cents a copy
Two dollars a year

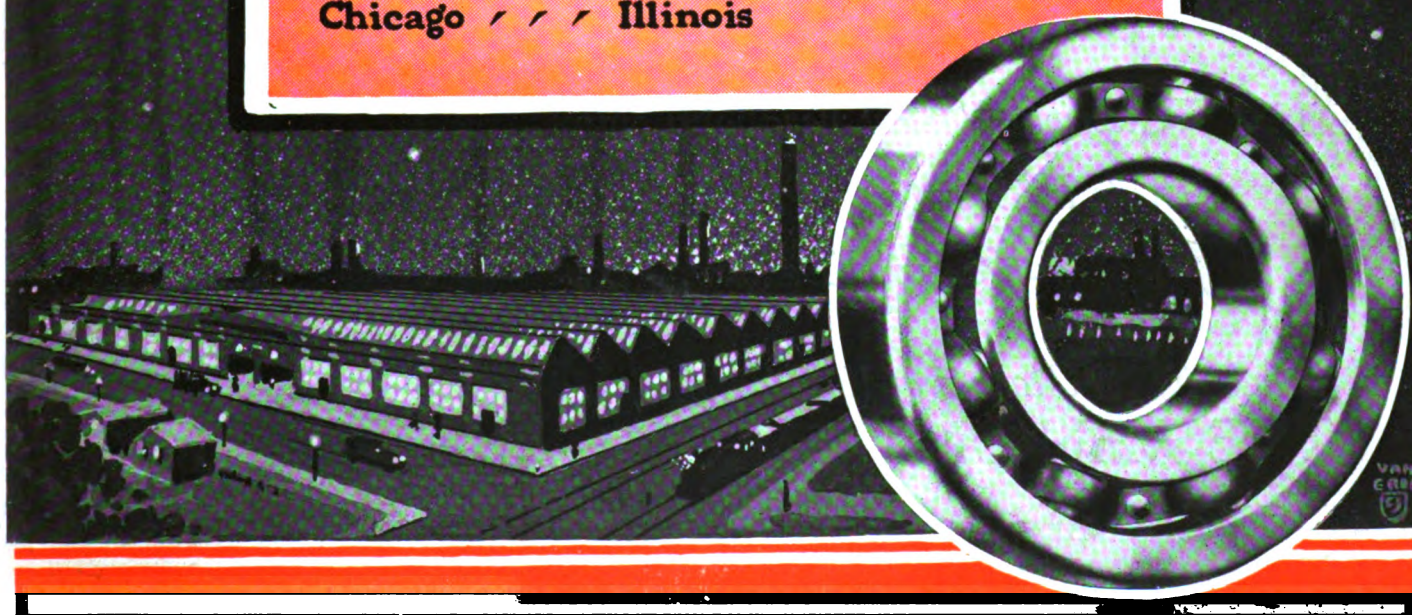


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(for Ford Cars)

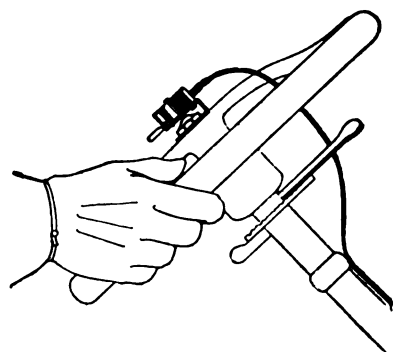
Takes headlight control away from the Ford Engine and puts it within thumb-reach of the Driver's Hand.

It robs engine-controlled headlights of their greatest dangers and converts the Ford generating unit into a full-fledged, unfailing, instantly-controlled lighting system that every Ford Owner and Driver needs and wants.

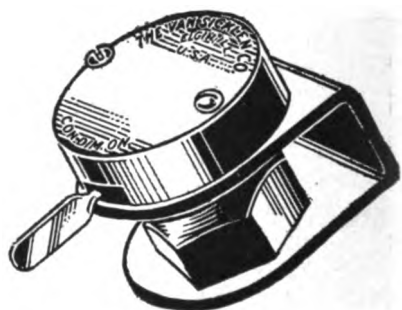
It is a Normal, a Dimmer and an Intensified Driving Light all in one at any engine speed. Installed in 12 minutes. For sale by Dealers and Garages nearly everywhere. Price \$4.00

Descriptive Booklet "Headlight Control" mailed upon request.
Trade Information—Prices and Discounts promptly furnished to authorized Dealers.

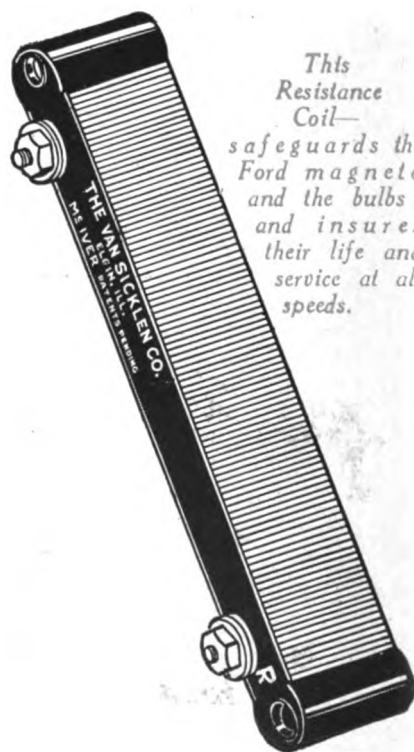
Made by the Makers of Van Sicklen Speedmeters
THE VAN SICKLEN COMPANY
ELGIN ILLINOIS



The Van Sicklen Control Switch is easily mounted on the top of the regular Ford Steering Column within thumb-reach of the Driving Hand.



A mere flip of this 3-way switch provides all required intensities of light—Normal, Dim or Intense—at all speeds of the Ford engine.



This Resistance Coil—safeguards the Ford magneto and the bulbs; and insures their life and service at all speeds.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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BEARINGS

The unfailing start at the touch of a button—the surge of silent power as the engine takes hold—the sure, swift speed acceleration—the “feel” of ample energy in reserve—all these things that make motoring most worth while are the things which distinguish the car of quality and reliability. And it can be no mere accident that these cars are, almost without exception, fitted with magnetos and lighting generators equipped with “NORMA” Ball Bearings. Remember—no car is better than its ignition and lighting generator. Therefore—

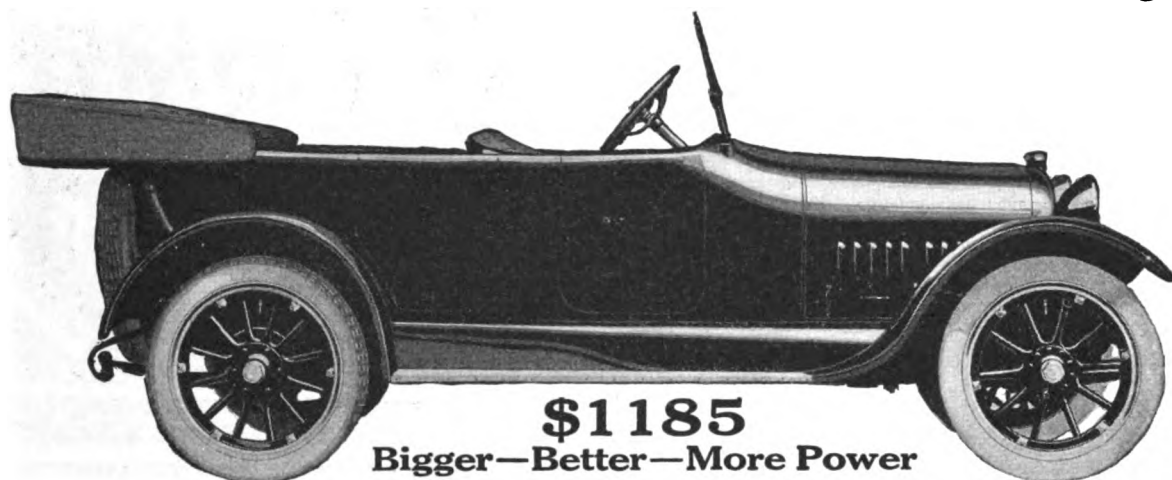
**Be Sure—See That Your
 Electrical Accessories
 Are “NORMA” Equipped.**

THE NORMA COMPANY OF AMERICA
 1790 BROADWAY NEW YORK
 Ball, Roller, Thrust and Combination Bearings



When writing advertisers please mention Motor World. It identifies you

Owners Say Velie Cars Are a Business Necessity



\$1185

Bigger—Better—More Power

FIVE hundred and eight of the several thousand Velie owners in Illinois and Iowa have just been interviewed. The question asked was: "Do you figure your car as part of your business equipment or as a luxury?" Without an exception these owners voted the Velie *a necessity to their business*, and as such a highly profitable investment.

The replies came from manufacturers, merchants and farmers. They figure the car against horses, buggies and wagons and the railroad transportation they formerly used. They figure the car's speed as a time saver. "It brings the city and country within a few minutes of each other," writes one. "I couldn't afford to waste the time it used to take me and my boys to get around on our errands," writes another.

Primarily, then, the car is a business need. It cannot be dispensed with any more than other machinery. But in addition it also affords the pleasure of the recreation trip and the tour.

No Other Investment Combines Business and Pleasure So Well

And no other car shows the Velie's values for the money. Its long service—its sturdy construction—its swift, sure, smooth performance—its wonderful records for being always on the job,

are due to such features as the Velie Special Continental motor—Timken axles, front and rear—multiple disc clutch—long, underslung springs—enclosed wiring—vacuum feed—automatic ignition. And extra convenience and comfort come from its push button starter—deep-tufted genuine leather upholstery—long and roomy body, with its famous *lasting Velie finish*.

Protect Yourself by Placing Your Orders Now

There is just about a Velie car in sight for every Velie prospect *today*—but no man can tell how long this will be so.

With a demand double that of any previous season, the Velie in common with other automobile manufacturers, faces the shortage of materials due to the Government's needs. Uncle Sam takes precedence of everyone else, and the car owner who does not make sure of his car now may have to wait a long time. Eight body styles—Touring Cars, Touring Sedan, Four Passenger Roadster, Coupe, etc.

More than 1000 dealers have been added to the Velie Sales Organization in the last season, by the demand for Velie cars from every part of the country. If your territory is still open, write for our liberal proposition, or come to the factory.

VELIE MOTORS CORPORATION, 115 Velie Place, MOLINE, ILLINOIS
Builders of Automobiles, Motor Trucks and Tractors

Velie Six

Biltwel

When writing advertisers please mention Motor World. It identifies you

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, June 6, 1917

No. 10



FRANK S. CHURCH
The Father of This System

FRANK S. CHURCH, of the Church Garage, Cadillac and Dodge dealer, Port Huron, has developed such a system. It has stood the test of time—for one year it has run without attention or change. It is automatic. Neighboring dealers have adapted it, and are satisfied.

Church first determined the requirements of the ideal time-keeping system. They were:

1—It must be automatic and simple. Any system that will not run itself, that requires constant checking up, or is complicated, is not satisfactory.

2—Each department must have complete data on each job—but no more data than are required for that particular department.

3—A complete record of all work done—by whom, how much and when—must be instantly available.

The keynote of the system is a time clock—one stamping the date and hours in decimals from 12 midnight as zero. This enables elapsed time to be obtained by simple subtraction. The clock chosen was made by the International Time Recording Co., Endicott, N. Y., and is well adapted to the system.

Three sets of cards or forms are

Keeping Time in the Repairshop

*A time-keeping system for the small shop—
A system that is flexible—that may be expanded
to meet the needs of the largest service station—
A system that promotes loyalty on the part of the
workmen, at the same time giving satisfaction to
the customer.*

By S. Thornton Williams

required, namely, the composite card, Fig. 1; the workman's job card, Fig. 2, and the workman's daily time card, Fig. 3. In addition, duplicate copy invoice blanks are necessary.

The composite card, Fig. 1, holds all the data on the job, supplies each department with the information necessary for that department, and contains the owner's check for his car.

The card is perforated, so that division into four parts is possible, after the preliminary data have been obtained. Each division carries the serial number of the job.

The top division is the car tag, and is attached to the car from the time it enters the shop until it leaves. In addition to the job number, it carries the owner's name, the time that the car entered the shop, as shown by the time clock, and a series of numbers representing the days of the month. The use of these numbers will be explained later.

Next to the top is the foreman's card. The owner and the foreman get

together and decide what is to be done. The common repairs are listed, and if to be done are checked. Besides these there are spaces for recording the time taken by the man in making the repairs. The owner's name also appears. This card is placed in the foreman's rack.

The third card is the office card. It contains all the data that the office must have, but which are not of the slightest value to the foreman or mechanic.

At the bottom of the stub is the owner's receipt for the car, and the car will not be released unless this stub is turned in.

All these forms are filled out the minute the car is received, and in the owner's presence. The parts are then separated and sent to the proper department.

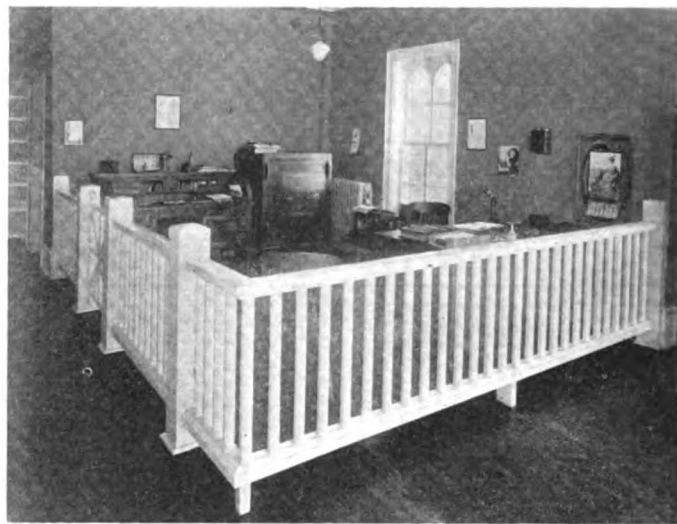
As stated, the top is attached to the car. The foreman's card is placed in the foreman's rack; the office card goes to a similar rack in the office, and the owner takes his stub. Now

Other Features in This Issue

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Your Business Is WAR!	59-60



This is the showroom—neat, clean and light. Church rearranges the cars often, and cleans up every day



Though the church windows are unaltered, the equipment and arrangement of the office is strictly businesslike

the car can be started through the shop.

If it is a hurry-up job, the foreman's card is placed in the rack devoted to rush jobs. See Fig. 4. Some one of the workmen is assigned to do certain parts of the work, and a workman's card, Fig. 2, made out. It is stamped with the time that the workman starts, and placed in front of the foreman's card in the rack where it may be seen.

A rack for work that is not needed immediately is at the right. These jobs follow through in natural sequence, as preceding work is finished—individual workman's cards being made out and placed in front of the foreman's card whenever a man starts to do any part of the work.

Elapsed Time of Work Obtained

When the workman has completed the portion of the work assigned to him, he stamps his time card and sends it to the office—after checking that portion of the work from the foreman's card. Thus the elapsed time of every portion of the work is obtained, as well as a record of the man that did the work. And the foreman can see at a glance—at any time—which men are working on any car, what work has been done, and what still remains to be done.

In the meantime, as the work progresses, cards are continually coming into the office. At the close of the day these are sorted out into groups—one group for each workman—showing exactly what that man has done during the day. The elapsed time of each job is determined, and added, giving the workman's time for the day. This is placed on the workman's daily time card, Fig. 3.

Then the cards are filed in the office rack, behind the office card of the job they represent. They remain there until the completion of the work.

When the work is completed in the shop, and all the items on the foreman's card are checked off, the foreman's card is sent to the office. Here it is placed in front to the office card, and is a visible index that the job is completed. An

itemized bill is made out, and the customer notified that his car is ready.

This itemized bill states the elapsed time, shows what work was done, and the charge. In case of any question, the job cards are at hand as a record, the invoice carrying the job number.

All of the cards—foreman's card, office card, job card, etc.—are gathered together, punched and riveted, and then filed serially for this detailed record. These cards are absolute evidence of the entire passage of the car through the shop.

Sidelights on the System

NOW to come back to some of the sidelights of the system. First—the use of the numbers on the border of the car tag attached to the car. After the car is ready, and the customer notified, an additional charge of 15 cents per day is made for storage. Each night

a man goes to every car in the place and checks the date of the month on the border numbers of the car tag. Then when the final invoice is made, the storage charges can be calculated from the number of checks.

Next—the method of handling sup-



DISTRIBUTORS		DODGE BROTHERS MOTOR CAR	
			
Mr. S. P. Rushton No. 6 Goodrich St Detroit, Mich		TELEPHONE 1 2 2 3 We are always glad to extend a credit for each item that should appear to be a subject of SERVICE. We invite your consideration.	
May 25 1917	OUR INVOICE	ENTRY	
No 7401			
SHIP TO			
TOWN			
OUR ORDER	INVOICE		
Adjusting brakes Air in tires, & Gasoline 4 gal. at 25 cents Polish (Labor) Polish (Supply) Wash Water Storage—4 days		HOURS 2.10 .08 .75 1.05	RATE 70 60 50 50
Total			DOLLARS 4 45

Fig. 5—When the work is completed, the invoice is made in duplicate—one for the owner and one for the files. Note how completely the owner is informed of the work that has been done

Fig. 1—The composite card is made out by the owner and the foreman before the work is started. The parts are then removed and sent to their respective places

plies. In case spark plugs, grease, oil or parts are required, a separate workman's job card is made out, and the item and price noted. This is filed in the office rack, as are the job cards.

All such jobs as washing, greasing, etc., are charged for on the hour basis, and the supplies used charged extra. For example, car washing is charged at the rate of 50 cents per hour, plus an extra charge of 15 cents for water. Polishing is done at the same rate, and 25 cents is charged extra for the polish used. Thus the system is made a unity, and the customer has to pay for exactly the amount of work that is done.

Every car in the entire establishment has a card attached to it—has a card in the foreman's rack, and another in the office. The showroom cars are no exception to this. This is necessary, because no man can touch a car unless it has a number to which he can assign his work card—and if the elapsed time is beyond reason explanations are necessary.

Fig. 2—The workman's individual job card. This shows exactly how much time the man puts on any particular part of the work

CAR TAG

FOREMAN'S CARD

OFFICE CARD

OWNERS CHECK

Fig. 3—This is the workman's daily time card, and is made up from all the individual job cards for the day. It is O.K'd by the foreman

Each night the foreman runs through the work cards for the day, and because of the subdivision of work into jobs; because of his immediate memory of the day's work, and because of the accurate record offered, can immediately pick out any suspicious cards. These are checked up immediately and the daily card O.K'd. It is impossible for the workman to pull anything over on the foreman. Complaints are forestalled before they occur. The above is from the employee's side—and from the customer's side. These are important—but how about the workmen?

The workmen heartily endorse the system. It is definite. They know that they get paid for the work that they do—that an absolute record of their work is available—that in order to get more pay they have got to do more work—that it is as fair to them as it is to the management and to the owner.

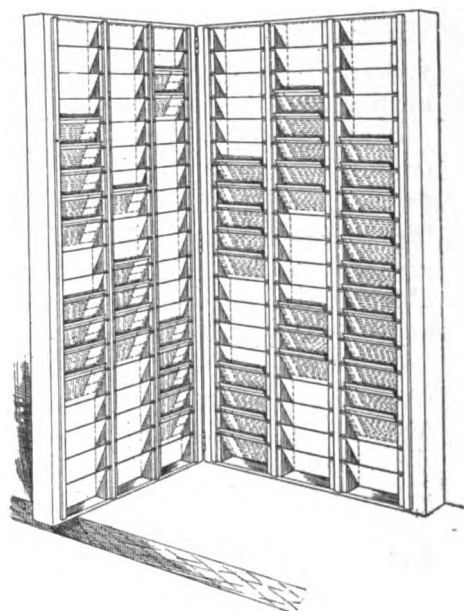


Fig. 4—This is the foreman's card rack. Each job has a division, holding the foreman's card and any of the workmen's job cards that are working on the car. The office rack is of similar construction



This is the church that Church built—or rather "converted" into a dealer home. The extra skirt on the ground floor holds the repair shop, showroom, offices and garage. More garage space is provided by an extension of the choir loft that is reached by a 30-degree ramp

Why Should I Buy a Liberty Bond?

Every Man and Every Woman in the Country Must Get Behind the Liberty Loan—Secretary McAdoo

ONE of the most successful managers of men in the world was asked how a man might know whether he had it in him to become a success in life. He answered:

"Can you save money? If you cannot save money, you have not the essential characteristic which will allow you to become a success; you are licked before you start."

To be successful we must all save money; but it will not do to hoard it away in an old tin trunk. We must invest it; *we must put it to work for us.*

And it is here that the Liberty Loan stands pre-eminent. As an investment, there is nothing better in the world to-day. Liberty Bonds are backed by the United States Government—a government with greater resources than those possessed by our four allies across the seas: Great Britain, France, Italy and Russia.

The Liberty Loan is an investment. It is not a contribution to the government. It is something which we purchase to put our money to work—and in this case it is putting the money to work in the greatest cause of the world's history.

President Vanderlip of the National City Bank of New York, the largest banking institution in the world to-day, says that one of the most valuable

by-products of the war will be the lesson of thrift it will teach America.

America has always been a spendthrift nation. *Here, then, is an unparalleled opportunity to become the most saving nation in the world.*

We should buy Liberty Bonds to promote thrift.

The man who consistently saves money is a good business man.

Furthermore, this great Liberty Loan presents the employer with an unexampled opportunity to weld his organization into a *better business organization.* Any employer with a bunch of spendthrifts on his payroll has a poor business organization. *Men living from hand to mouth cannot be as efficient as men with a reserve behind them.* This is a business axiom.

This is why every employer must urge his employees to buy Liberty Bonds—to buy as many as they can possibly afford. These men are laying away a bit for a rainy day by doing so. They are converting themselves into capitalists. They are doing the very thing that gave Rockefeller and Morgan and Carnegie their millions. *They are making their savings work for them.*

"I should buy a Liberty Bond to learn the lesson of thrift so that I may become a real success in life."

Application for Liberty Loan Bonds

This application should be transmitted through the subscriber's bank, trust company, or other agency acting on his behalf, or it may be filed direct with the Federal Reserve Bank of his district or the Treasury Department at Washington.

Dated.....

To the Secretary of the Treasury:

According to the terms of Treasury Department Circular No. 78, dated May 14, 1917, the undersigned hereby apply for \$..... par value of the 15-30 Year 3½ Per Cent Gold Bonds of the United States, and agree to pay par and accrued interest for any bonds allotted on this application. The sum of \$..... is inclosed, being 2 per cent on the amount of bonds applied for (or payment in full for the one \$50 or the one \$100 bond applied for).

Signature of subscriber, in full,.....

Address—Number and street,.....

City or town,.....

County, State,

How to Make Money on Used Cars

Motor World's Used Car Business Plan

USED CAR CHECK SHEET

Make..... Owner.....

Body Type..... Address.....

Capacity..... Phone.....

✓	Engine	\$	✓	Front Axle	\$
	Cylinders (cracked)...			Alignment	
	Valves (grinding, etc.)...			Steering Gear	
	Timing gear (adjustment)			Adjustment	
	Rod bearings.....			Bearings	
	Main bearings			Gears	
	Pistons and rings.....			Running Gear	
	Oiling			Springs	
	Carbon (removal).....			Brakes	
	Ignition			Wheels	
	Wiring			Fenders	
	Plugs			Runningboards	
	Coil			Tires	
	Magneto			Front	
	Fuel System			Rear	
	Carbureter			Extra	
	Line and tank			Body	
	Cooling System			Paint	
	Fan			Upholstery	
	Radiator			Floorboards	
	Pump			Windshield	
	Starting—Lighting			Equipment	
	Generator			Speedometer	
	Starting motor			Top and curtains	
	Bulbs			Horn	
	Wiring			Tools	
	Storage batteries.....			Extra Equipment	
	Clutch			.....
	Adjustment .....			.....
	Relining .....			.....
	Transmission			.....
	Gears .....			.....
	Bearings .....			.....
	Shafts .....			.....
	Shifting mechanism...			.....
	Driveshaft .....			.....
	Universals .....			.....
	Rear Axle			Overhaul Cost	
	Adjustment .....			.....
	Gears .....			.....
	Bearings .....			.....
	Radius rods .....			.....
	Torque member .....			.....
	Motor World Systems			Appraiser	

THIS plan was described for the first time in *Motor World* last week on pages 5, 6, 7, 8 and 9. You should read those pages—study them carefully. The forms for use with this plan are again shown, the Check Sheet being this week reduced to a convenient size that will fit the pocket of the used car inspector. Study carefully this page and the three that follow. Don't overlook a single point, for that point may be the one that will lose money for you—if you don't get it.

MOTOR WORLD'S investigation of the used car situation has revealed facts which are fundamental to the solution of the grievous problem that has bothered this industry for years. Great changes are necessary in the businesses of even some of the country's best and biggest dealers. The biggest fact developed is this: The used car is not a *problem* if you make it a *business*. Get these points:

1—The dealer must handle used cars in a businesslike way. He must go into it just as he goes into his new car business.

2—He must make a profit selling used cars. Can you imagine anything more unbusinesslike than working your head off for nothing?

3—He must fix up every used car taken in and put it in usable—not merely salable—condition.

4—The dealer must become a used car expert. He must learn to appraise cars. For that purpose *Motor World* has developed its Used Car Business Plan.

5—THE LAWS OF USED CARS have been worked out by *MOTOR WORLD*. Some were printed last week; more will be printed in the future. **STUDY THEM.**

6—The dealer must have **BACKBONE**. He must not trade except at a figure that will allow him to get all his money—trade price, overhaul and overhead—back **WITH A PROFIT ADDED** when the car is sold.

7—The dealer must **KNOW HIS COSTS**. He must have an accounting system that will tell him *how much it costs him to handle a used car*.

The form at the left should be used whenever a car is brought in for trading. Inspect the car carefully, itemize needed overhauling and refinishing, set down the costs of these items and **DEDUCT THIS COST FROM WHAT THE CAR WILL BRING WHEN RESOLD**. Don't guess at overhaul costs. Be scientific. It is easier than working haphazard. These forms, bound in pads of 100, can be purchased from *MOTOR WORLD* for 50 cents a pad, postage prepaid.

How to Find What to Allow for Used Cars

What the Curves on the Chart Mean

THE Upper Dotted Line, or curve, represents the most that should ever be allowed for any car, and that very, very **SELDOM**. It comes nearer to representing what the big majority of cars will sell for after they are thoroughly overhauled. The principal value of this line is that it tells you the point above which you **NEVER** should go, no matter how good the car, unless you know a man to whom you can sell the car ten minutes after you take it in and get your money back—plus.

The Black Line is your one safe bet. Use it always. If it should give you a resale figure that you **KNOW** is low, advance the price slightly. But don't get into this price-advancing habit. That's what has created the used car problem. Stick to the **BLACK LINE**.

The Lower Line is safer than the **BLACK LINE** if there is any doubt in your mind as to the popularity of the car, due to defects, poor representation, lack of advertising or other reasons. And if there is still doubt go even **BELOW THE LOWEST LINE**. Play safe! Some cars only one year old sell at only 25 and 30 per cent of the original list price. If you don't believe it trade one in and try to sell it.

THE Motor World Used Car Price Chart shown on the opposite page is founded on used car statistics. It was shown for the first time in Motor World last week. On these pages are detailed examples of how to use it. In using the chart, always operate as follows:

1—Find the year of the car; that is, whether it is a 1914, 1915, or some other model.

2—Place your finger on the figure at the bottom of the chart which corresponds with the model of the car. Thus: If the car is a 1914, place your finger on 1914; if a 1915 car, place your finger on 1915, etc.

3—Wherever you place your finger count "one," and continue counting to the right until you hit the present year, which right now is 1917. Do not, if it is a 1914 car, put your finger on 1914 and count 1915 as "one"; 1914 will be "one," and 1915 "two," which will make 1917 "four," will it not? Be sure to say "one" when you put your finger on the year of the car, else you will be a year out of the way.

4—When you hit 1917 with your finger the count will tell you "what year of service the car is in," for computing purposes. Thus, if when your finger hits 1917 you say "three," the car may be considered as in its "third year." If you say "four," it is in its "fourth year."

5—Having found "what year the car is in," go to the top of the big chart, where you will find "first year," "second year," etc.

6—Having located your car as being in, let us say, its "third year," and having found on the big chart the space labeled "third year," operate as follows: Look at the calendar on your office wall and see what day of what month it is. Then find in the "third year" space the date line nearest **TO-DAY**. To-day is June 6, wherefore we learn that the nearest indicated date in the "third year" space is "July 1."

7—This "July 1" line in the "third year" space is what we are to use. Therefore, run down this "July 1" line until it hits the **BLACK LINE**, which slopes across the chart. Then—

8—Run to the left or right, it makes no difference which, until you hit the percentages at the side of the chart. In this case you will hit about halfway between 30 per cent and 35 per cent. As near as we can figure, we hit at about 33 per cent. This means that the car is worth about 33 per cent of what it cost when new. This 33 per cent ap-

plies to the car in "as is" condition, as a car of that age might be expected to be. Perhaps the car is a lot better than "as is" expectations. What then? Keep right on reading, and you will see how that works out.

9—We said the car was worth 33 per cent, didn't we? Well, $33\frac{1}{3}$ is the same as the fraction $\frac{1}{3}$, and $\frac{1}{3}$ is easy to figure with, so let us say the car is worth one-third what it was when new. That makes figuring easier.

Let us also say the car sold for \$900 when new. If it is now worth one-third of \$900, it is worth \$300, isn't it? That's easily done.

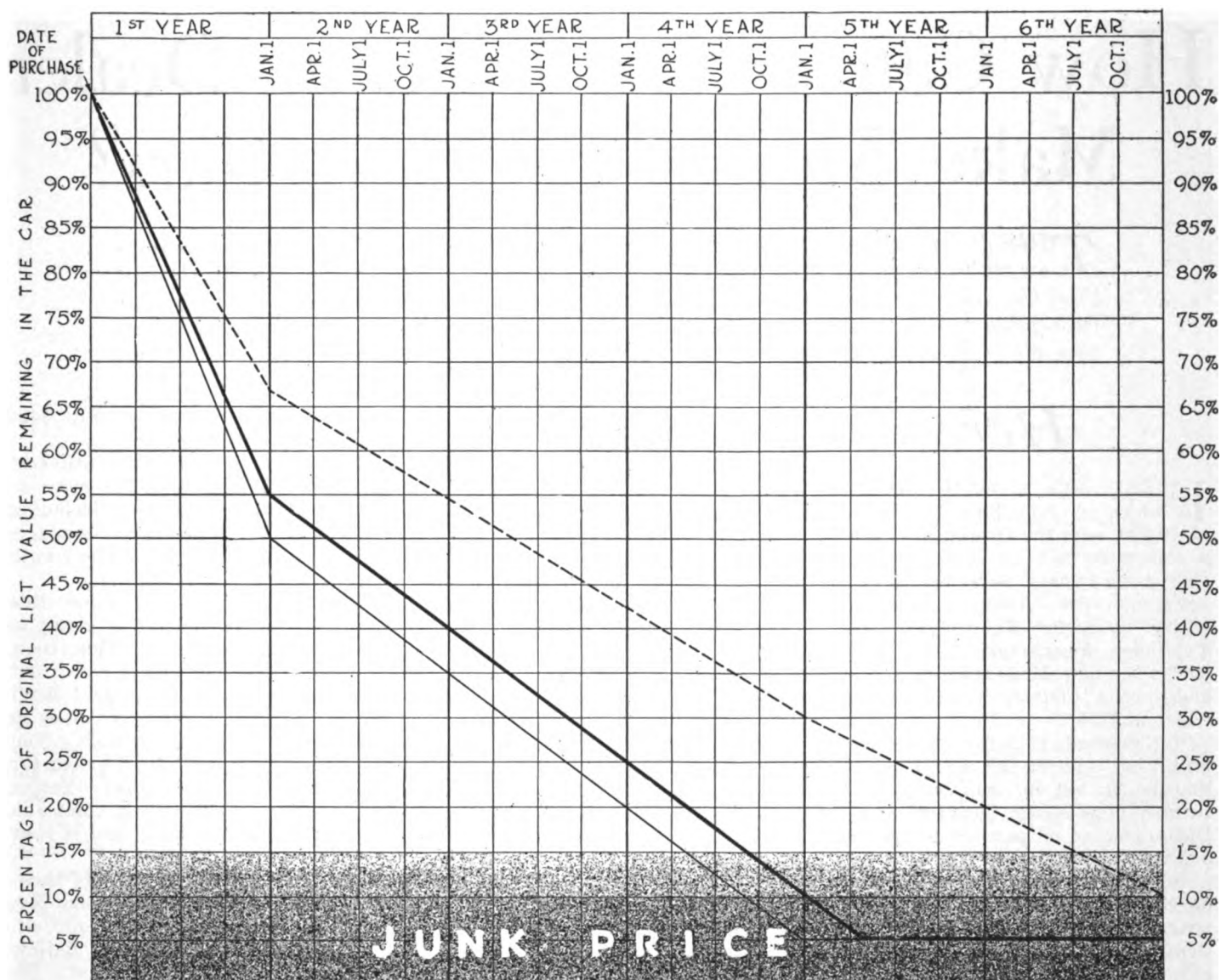
The car, as it rolls up to the door, may possess \$300 of usable value, but we can't allow \$300, because we are going to do this thing scientifically and in a businesslike way, and we aren't going to make **ANY** allowances until we find out where **WE** get off.

10—When overhauled and put in good condition a car is worth from 30 per cent to 50 per cent more than in "as is" condition. The average is about 40 per cent. Therefore, if we fix this car up it will be worth 40 per cent more. Increasing our \$300 "as is" value by 40 per cent gives us \$300 plus \$120, which is \$420. We can expect to get \$420 for the car when it is put in good usable condition.

You may say: "But the car is in good condition now. Hardly anything needs to be done to it. Why can't I allow \$420, and be done with it?" You can, if you want to, but if you do you will keep right on having a used car problem. That is what has been the trouble with used cars. Dealers have been allowing any old price for them, without knowing what they **SHOULD ALLOW**. You had better keep on reading.

11—You can get \$420 for the car, can't you? But first you must fix it up. You may say: "But it doesn't **NEED** much fixing up!" Oh, doesn't it? Hadn't you better find out for yourself what needs to be done, instead of taking some car owner's word for it? Car owners have been telling fairy stories for too many years now, and it's time for you to check them up; so turn to page 9 in this week's **Motor World** and check the car over according to the Used Car Check Sheet shown there.

The Story of the
Motor World Used Car Business
Plan this week occupies
Pages 9, 10, 11 and 12



1912

1913

1914

1915

1916

1917

After you have checked the car you may say: "It's in pretty good condition. I guess it'll cost about \$10 to fix it up." And there's another cause of the used car problem—*guesswork*. Take the chart, go through it item by item, set down the cost by the hour of any labor that must be done, set down the cost of materials and parts, get every item in, add them up, and **REALLY KNOW WHAT IT WILL COST**. Then you are operating scientifically and in a businesslike manner. Don't kid yourself on this overhaul-cost question. Play safe.

12—Having found the cost, which we shall assume is \$50, deduct that from the \$420 that you can get for the car. **NOW—you can allow only \$370.**

13—Furthermore, it costs you money to handle used cars. It costs you money every time you roll one in the door. It takes space, light, heat, rent, overhead, and all kinds of expenses, which we call "carrying costs." You may say you never have figured these in on your used car business. Perhaps you haven't, but if you had you wouldn't have had so much of a used car problem. Let us assume that your carrying charges are \$20 per car. In one big city they are \$100 per car. If yours are \$20,

deduct this much more, as follows, \$20 from \$370 leaves \$350.

14—And now—financiers say that if they can't make 10 per cent they wouldn't handle used cars at all. That is sensible, scientific and businesslike. Therefore deduct 10 per cent for profit; 10 per cent of \$420—the price at which you are going to sell the car—is \$42. That, taken from \$350, leaves \$308.

15—If you are manager and salesman both, you need not take out for salesman's commission; but if the salesman is entitled to a commission of, say, 5 per cent, take that out, too; 5 per cent of \$420 is \$21. That, taken from \$308, leaves \$287.

This, you may consider, is low. Maybe it is low, but what is your ambition in business—to make profits or give them to your customers? That is all there is to the much-discussed used car problem—too many profits given to customers.

You can allow the customer \$287 for his old car, and when you sell it you **MAKE** money instead of **LOSING** it. All that is needed is this used car plan and **BACKBONE**. It's one of these up-to-you situations.

How Can a Small Town Dealer Make Money in Used Cars?

THIS dealer perhaps has only a salesroom—and a small one at that. He has no service station or repair shop. What is he going to do? MOTOR WORLD says in its new Used Car Business Plan that cars must be fixed up before they are resold. How is this man going to do any of this fixing-up when he has no place to do it? Ah! Hard question, isn't it? But—

Here's the Answer

FIRST, let's state the problem, which is: John Smith, in a town of 10,000, sells the Overland. He has a salesroom but no service station. He's going to have one soon but hasn't yet secured one. Along comes McKew with a little 1915 Buick, C-25 model, 4-cylinder, 5-passenger. It sold for \$900 when new. McKew wants to trade and buy a Country Club Roadster, which is \$795.

McKew wants \$600 for his old Buick. Smith has a hunch the car isn't worth that much, but he isn't sure, so he turns to the Motor World Used Car Business Plan on pages 9, 10 and 11, and operates as follows:

He finds by the "finding chart" on page 11 that the car is in its third year. He runs down the July 1 line in the third year space and finds that it hits the **BLACK LINE** at about 33½ per cent. The car originally cost \$900, so Smith divides by 3 and finds the car is worth "as is" \$300. If it is put in good usable condition he knows it will be worth from 30 to 50 per cent more. He selects 40 per cent as an average because the car is about average popular in his territory, and adds 40 per cent—\$120—to the \$300. This tells him he may expect to get about \$420 for the car if it is fixed up.

Now, **HOW** is he going to fix it up if he has no shop? And how is he going to know how much fixing there is to do?

Very easy. He takes the Motor World Used Car Check Sheet, shown on page 9, and goes over the car. But perhaps the dealer doesn't know enough about mechanics to make such an examination. What then?

There is some repairshop in town, isn't there? Surely there must be! Very well. Ask this repairman to send you an expert at regular hourly rates to examine the car. After the examination is made ask the repairman to give you an estimate on fixing it up. If necessary, remove the license plates

when the examination is being made, although this should hardly seem necessary in these non-caveman days.

After the repairman has made an estimate deduct this as the overhaul cost. Suppose it is \$50. Smith deducts \$50 from \$420 and finds it leaves \$370.

He then takes off 10 per cent for profit and nothing for selling commission, for he sells everything himself. Ten per cent of \$420 is \$42, which, taken from \$370, leaves \$328.

For carrying charges he takes off only \$8 and does that merely as a matter of precaution, for he doesn't store many used cars for long periods, doesn't have any expense in particular except a little of the general overhead. This brings the figure down to \$320.

"I can allow you \$320," says Smith.

"Not enough," says McKew.

Read how to make money in Used Cars on Page 9

Read how to find used cars allowances on Pages 10 and 11

Smith begins to wonder how much he can throw off on that deal and get by. And then there flashes into his mind some of the things that the factory sales manager said at last winter's show-time dinner about common sense and backbone—and Smith stiffens.

He asks McKew if he knows of any one who will pay \$600 for the old Buick. McKew hems and coughs, and says he thinks Smith could find some one. Whereupon Smith asserts that he has been in this "buyer finding" business for some time, and happens to know

that the car will bring only \$420 after it is overhauled.

He also tells McKew it will cost \$50 to fix the car and \$50 more to cover the cost of handling it, including rent, light, heat, insurance, management and all the other things Smith can think of.

"Now," he says, "if you buy this Country Club Roadster I'm going to give you service on it. That costs me money, and that money comes out of my profit on the car. If I don't get my margin I can't continue in business and give you service. You expect people to pay **YOUR** prices for corn and wheat, don't you? You've got to make a profit or you can't run your farm, haven't you? And is your position different from mine?"

It doesn't take much of this backbone, common sense talk to make McKew feel rather ashamed of himself.

Used car science has pinned McKew down pretty tightly to the mat. He still believes that somehow or other he ought to get more for the car—just as all car owners have always believed and have thereby ruined hundreds of dealers—but McKew hasn't any arguments.

He has plenty of money, he really wants the Country Club Roadster, his daughter told him to be sure to buy it, so he lies down—as almost every car owner will—before the dealer's exhibition of **BACKBONE**—and buys the car.

YOU can do it too.

Here's How the Dealer Figured

Original list price of car.....\$900
Car, in 3d year, is worth 33 1/3% of list...\$300
Increase of 40% if overhauled..... 120

What car will bring if fixed up.....\$420

The dealer deducts:

Overhaul cost\$50
Profit of 10% 42
Overhead 8

100

He allows for the car.....\$320

He sells it for..... 420

He makes a clean profit of..... 42

THE FARM TRACTOR

This is the second of a series of articles which will take up in an analytical way those features of tractor design that will assist the dealer and garageman to a better understanding of manufacturing, merchandising and maintenance in this field

What Is the Best Kind of Tractor Engine?

2

THE engine is the principal part of the farm tractor. Upon it the farmer depends for results; if the engine fails, or wears out, the whole tractor is worthless—worthless at least until repairs are made or another engine substituted for the useless one.

And because the tractor engine works under harder conditions than does any other kind of engine, it is doubly important that the design be correct in the first place, that the workmanship be correct in the second place and the various working parts be thoroughly protected from accidental damage and from dust and dirt, in the third place.

Tractor engines now in use have been developed either from automobile engines or from stationary engines; but it is easy to overlook the fact that the service demanded of a tractor engine is many times harder than that demanded by any other.

The motor car engine has the easiest existence of all those listed in the accompanying table. These degrees of hardness of work to be done do not altogether represent difficulty of manufacture in inverse ratio, because there are compensations. For instance, the light-oil marine engine can be made to withstand long hours at full power by an increase in weight, and the same is true to some extent of tractor motors. Still, figure it how you will, the tractor engine remains the second hardest to build if we are seeking efficiency and continued durability.

Since nearly all running is done at full power on both aviation and tractor engines, the principal difference between them is that of weight per horsepower. In other terms, this means that the tractor engine can have a low mean effective pressure, while the aircraft engine must have a high one, and that durability can be

The Most Important Part—The Engine

sought by size in one case, whereas it can only be obtained from high-tensile material in the other.

At first sight, this looks as though the tractor engine was a far easier proposition, but there is another factor, perhaps the most important of all, which in a sense makes the tractor engine the hardest of all to build successfully. This is that of all the engines classified the tractor powerplant is likely to get the least attention, while it operates under absolutely the worst conditions. An aircraft motor gets constant skilled attention and may be designed for experts, the engineer knows that the mechanic will at least understand it and be able to keep it in tune. The aircraft engine does not work in clouds of dust, it is not bumped and shaken, it can be sure of ample clean oil. Lastly, but far from least, it gets *good, clean, light fuel*.

The ideal tractor engine should operate forever, at full power, on low-grade heavy fuel, with no attention—obviously an unobtainable ideal, but one we shall always have to strive for.

Again to classify, the main problems of tractor engine design appear to be as follows:

1. Reliability without skilled attention.
2. Capacity to use heavy fuel.

The fulfillment of the first condition is rendered vastly harder by the presence of the second.

It is rather a sweeping statement, and will no doubt be challenged, but it is really true that the only entirely successful heavy-fuel engines in existence are those in which the cylinders are large enough to permit the fuel to be metered and injected.

Further, none of these engines have been able to do well in any service without skilled handling, not necessarily highly skilled, but much more skilled

Engines Classified

According to Severity of Service

1. Aviation engines in planes or dirigibles.
2. Tractor engines.
3. Heavy-oil marine engines.
4. Light-oil marine engines.
5. Automobile engines.
6. Stationary gas and oil engines.

than the tractor engine is going to get. By heavy fuel is meant anything as low in vaporizing quality as commercial kerosene. Actually when we have cut out everything that goes into the lower three-quarters of the distillation curve of present-day gasoline, it does not seem to make much difference for a good distance farther. In other words, it is much harder to change from gasoline to kerosene than from kerosene to fuel oil.

However, let us first take the things which make for mechanical reliability without complications. First come low unit pressures, which mean large bearings and large parts so that the stresses throughout are low. Here the limitation is the forces due to reciprocation and centrifugal action. An engine is not made more reliable by being merely increased in size beyond a certain point, and we have yet to find just where that point occurs.

Workmanship Is Important

Next comes workmanship. Taking a bearing as an example, its life depends upon its unit loading to a great extent, but to an even greater upon its original fitting and its lubrication. No crankpin is perfectly round, there is always some error, but the nearer we get to perfection the better the condition for the bearing. So with cylinders and pistons, the smoother they are at the start the longer will they stay smooth. It is rather hard to get rid of the idea that the big engine with a very low power per cubic inch need not be made so accurately as the automobile motor, yet this is absolutely the wrong way to look at it.

The better the finish on its wearing parts the longer will any machine run without trouble, so for shafts and bearings the tractor engine deserves at least as good workmanship as an aviation engine.

There are not a dozen passenger car engines made to-day that would stand continued running at three-quarter power for an aggregate of several months, yet this is just about what the tractor engine gets.

Now, to consider the complicating effect of heavy fuel: the worst action it has upon reliability is the cutting of lubricating oil. This is not a trouble confined to heavy-oil engines, it occurs to a considerable extent with automobile motors; as soon as we have to deal with a vapor instead of a dry gas, action upon the oil will begin. With the tractor engine the case is worse because of the larger amount of fuel burned in a given time and because of the desire to reduce the light fractions in the fuel to a minimum.

Heavy Fuels Practicable

There seems to be an idea, somewhat prevalent just now, that engines modeled upon the stationary type are better able to handle heavy fuel than automobile engines. There is really nothing to support this, because the conditions are just the same for both. There is just one way in which a few stationary type engines have scored over the other, and this is that they are not always fitted

with circulatory lubrication systems. Assume a lubrication scheme where each drop of oil is only used once, and is then thrown away; then the heavy fuel cannot do much damage to the mechanical reliability of the engine, but the oil consumption becomes a serious item or else all parts are starved of oil and their reliability impaired thereby.

It is a fundamental fact that a dry gas cannot be made from kerosene which will not become wet again on the slightest provocation, such as a trifling change in speed or load. Some inventors are approaching a metering system which will adjust the quantities of fuel, air heat, and perhaps water too, so delicately that all will respond automatically to speed and load changes.

This is the ideal apparatus for attaching to a four-stroke cycle engine designed to operate on gas, as are all engines with carbureters or vaporizers.

The other type of engine is that in which fuel is injected and burned in an excess of air. The best known is the Diesel; the most satisfactory in small sizes, the hot-bulb engine, commonly misnamed the semi-Diesel. Here the fundamental difficulty is that of proportioning the quantities of fuel injected to the speed and load, and no engine of this sort has yet been built commercially that would work on a tractor without moderately skilled handling.

Thus we have two things to work for in obtaining the heavy-fuel tractor motor: Either the perfect vaporizer which will deliver a gas that can be handled as a gas in the engine, or a super-Diesel or super-hot bulb which will not have the mechanical defects of this type, as at present made for stationary service in small sizes.

Just at present it appears that the probability is very strongly in favor of the perfection of the vaporizer preceding the perfection of the injection engine. The injection engine becomes harder to build with every decrease in the size of individual cylinders, and this is a serious handicap to tractor developments.

Again, to give an opinion that is not shared universally but is gaining ground, it is unthinkable that any engine with less than four cylinders can have a lasting place in tractor propulsion. If we are to have four cylinders they will need to be fairly small, much smaller than any which have been handled successfully as yet on the hot-bulb or Diesel principles.

Let it not be forgotten that the market for small stationary engines to run at constant speed and almost constant load, on heavy fuels, is much larger than the supply. The perfect engine of the hot-bulb type would be bought just as eagerly for stationary work as for any other, but the world is still waiting.

Among the tractor producers a number claim to use kerosene, but one notices their demonstration machines operate mostly on gasoline. Particularly among the users of two-cylinder opposed engines one sees kerosene burning attachments that cannot possibly work without flooding the cylinders with raw

fuel. Crude is altogether too mild a word to describe them. Once warmed up, a conventional passenger car will run on kerosene without carburetor alteration, *after a fashion*, and it is in about the same fashion that a big percentage of the nominally kerosene-burning tractors run. In a number of the layouts almost every known law for kerosene vaporizing is disregarded. Something that can just be "got by with" is not going to encourage the farmer to place a repeat order. It is better policy at the present to insist on the use of gasoline or gasoline and kerosene mixed than to pretend to do things on raw kerosene that cannot really be done.

Fallacy of Exaggeration

A well-known engineer once said that one of the difficulties in tractor-engine making was that there "wasn't an eighth of an inch of coast in a tractor," meaning that if the engine missed a few explosions it stopped instantly. Similarly there isn't a long period of life for the tractor maker who depends upon exaggeration to sell his goods. You can fool a man a lot about the results he gets from his automobile, a little about what he gets from a truck, but there is no fooling the farmer *after* he has put his tractor to work.

There is another possibility, the alcohol tractor. The opinions of experts as to the practicability of alcohol production on a large scale are diverse, but there is a fairly general agreement on the broad idea that alcohol can be produced from waste vegetable matter, and that if we can find the way to get enough raw material at one spot to keep a big still running we can have cheap commercial fuel.

Alcohol, if it does come into use widely, will probably do so slowly. In certain parts of the world, notably the tropics, it can be made more cheaply than elsewhere and in such places we shall see the growth of demand for alcohol-burning engines for all purposes.

Alcohol carburates fairly easily, is a good, clean fuel, in fact, but it is of only half the thermal value of mineral oil. To burn it efficiently we need high compression, far higher than any gasoline engine, and even then to get the same power we have to burn approximately double the quantity. France has for many years tried to encourage the use of alcohol, and trials held by the French government showed that the burning of alcohol in engines of the conventional automobile type, but of higher compression, was perfectly easy.

Special Fittings for Alcohol

A thought suggests itself here which is that it should be worth the while of some tractor-engine builders to ascertain the best compression and to discover any other special fittings required for alcohol usage. There is reason to believe that any engine, almost, with detachable cylinder heads, could be constructed so that all the change necessary for alcohol burning would be a new head, just as a new head with lower compression is to

(Continued on page 52)

Getting In to See Prospects

By Ray W. Sherman

"IF you can't get in to see him you can't. That's the end of the parade so far as your calling on the man is concerned." Tommy Trumbull cleared the situation amazingly for Reilly's newest salesman, George Beckwith.

"But," continued Tommy, "maybe your ideas about 'can't' aren't quite right. And, on the other hand, maybe they are. Who can tell?"

"Well," asserted young Beckwith, "I tried hard. I made regular plain every-day attempts to get in to see him and I even worked a few wrinkles that I had heard book agents used. I didn't dare go down to his house and put my foot in the door, although I have heard of its being done."

"And you needn't try it. Don't pull any funny stuff in this organization. When it gets to the point where we have to sell the Sennett with our foot in the crack of the door I'll quit. The Sennett isn't that sort of bird."

"You haven't been selling things so very long, George," continued Tommy, "and you may be thinking there are lots of funny tricks to selling. You may have the idea that salesmanship consists of pulling a lot of this book agent jump-the-fence and crawl-through-the-window stuff, but that bears about the same relationship to the sales business that Diamond Dick does to every-day life. It might happen, and some of it sometimes does."

Be a Gentleman

"You must remember this: You are selling a high-priced product, not a set of books, and you are dealing with men of money and standing, not a lot of improvident dollar-a-weekers. It becomes you to be a gentleman—or at least act like one part of the time. Climbing through windows, sneaking through private offices, coming in over the transom or up through the coal-hole may be done in the movies, but it won't get you very far in real life."

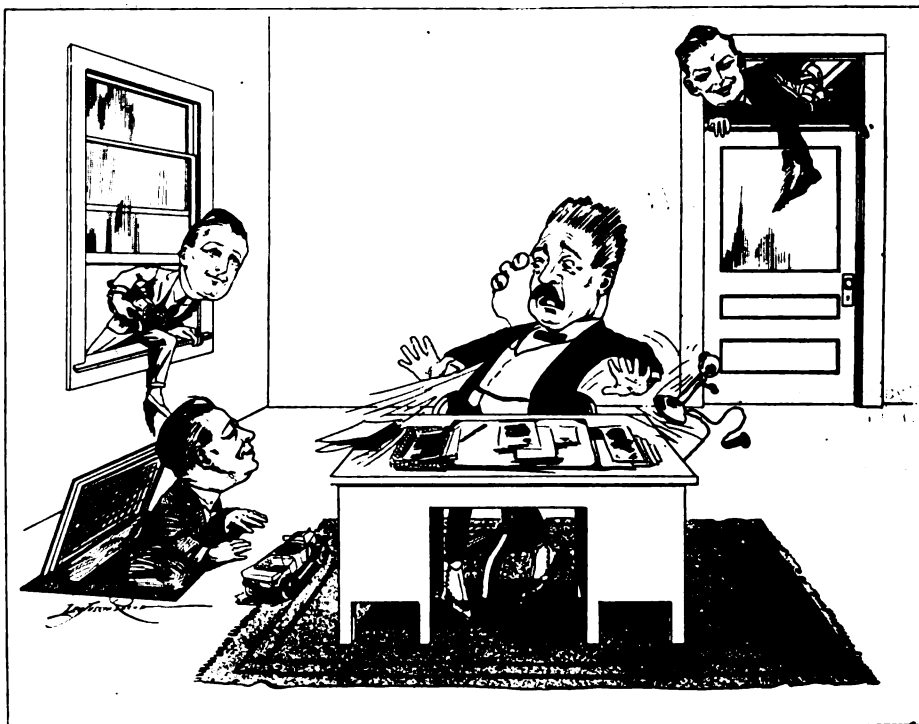
"The minute you pull any of that stuff the prospect puts you in the book agent class—and you know how book agents stand with the general public. Both yourself and the car take a fall in the estimation of the man whose mind you are trying to influence."

"But how am I going to do it?" pleaded George.

"Just work sensibly and co-operate with our organization. This matter of getting in to see people is something Mr. Reilly and the rest of us have talked about many times. We concluded that sane business methods are the best."

"There are many prospects difficult to see. There are business men who really are so busy that to try to see them at their offices would be an imposition. And they don't care to see you on business matters at their homes evenings. Yet we have to sell cars to these people."

"Instead of trying to force ourselves



continually into this man's office or home we begin a campaign on him. After we have lined him up as a hard-to-see man we begin on him with a series of letters—not ragged, mussy letters but real type-written letters signed by the boss.

"We shoot five or six at him and try to get him to respond. And then we make another attempt to call on him. We go to his office or home, whichever we deem best, and send in our announcement by word of mouth, not by card if we can avoid it. Sometimes the circularizing has gotten to him and he consents to see us. If he sees us it is then our business to make the call count. Nothing can help us if we aren't able to make our time count after we once get by the barrier."

"Getting in to see the prospect is mostly a question of plain common sense and gentlemanly business conduct. Sneaking into a business office unannounced and trying to sell things is resented. It hurts you in many cases. It's a regular insurance-man trick."

"All these tricky ways aren't the best thing in selling a high-class car to a high-class clientele."

"There is, however, this angle to it: There is a big chance to use your head in seeing prospects. You don't have to scheme your way into their homes and offices, but you can scheme your way to the man. I know a salesman who took a train and rode five hours because he knew the man he wanted to see would be on that train with most of the five hours as leisure time. He sold his car."

"After he got to the man in leisure time the salesman made his time count. And he frankly admitted he was taking

the trip for the purpose of talking to the prospect, a doctor, because the doctor had so little free time. This rather complimented the prospect."

"Supposing you know a prospect is going to the Chicago or New York show. He surely will have some spare time on his hands. It is intelligent salesmanship for you to go to the show also and try to hook up with your man while there—and sell him."

If Prospect Goes to the Seashore

"If your prospect goes to the seashore it is good work for you to jaunt down there some day yourself and accidentally bump into him. It may work out well. Or maybe you can arrange to get into some of the clubs he belongs to—golf clubs, city clubs and such things. There are all kinds of ways."

"The skillful salesmanly way is to make it appear to the prospect that you are not forcing yourself upon him. Once he gets that idea you have erected a barrier against yourself. If you can scheme yourself into contact with him and have it seem like a natural contact your chances are better than if you sneak through the outer guard of his office, stick your head in his door and shout: 'Ever drink a bottle of beer?' as did one book agent I know of."

"You must expect to sell every man you list as a prospect, and you must always expect to see the man on whom you go to call—but you mustn't be disappointed if you miss fire now and then. When you have trouble bring your trouble back to our organization and let us see if together we can't figure out a campaign that will win out for you."

Accounting and Business System

Questions and Answers about Motor World's Simplified System of Accounting

By T. W. Sneed

Here Is a Complete Set of Figures Taken From Motor World Simplified System of Accounting

System Editor: I am enclosing for your inspection, the results of the business done during the month of March as taken from the income and expense sheets of the Accounting System. And

if there are any corrections to be made, I would like to have you tell me.

Have I made the correct entry of the "Free Service"? Or should this be entered on the Statement of Profit and

Loss? I have entered all of the Assets and Liabilities in the back of the book. Should I post the Reserve for Depreciation to the credit side of the Repair Shop Equipment and Gasoline Equipment accounts, and the Free Service for March to the debit side of the Reserve for Free Service account?

I have had the Motor World Accounting System in use since the first of March, and am very well pleased with it. Of course, it means a little more work than my former system, but I feel well paid for the extra time spent, as it tells a person what he wants to know about the business. I would ask that you please withhold my name in case you use the statements for publication.—F. H. B.

Answer—With the exception of one or two suggested changes, your statements are absolutely correct as far as we can see. We are particularly glad to see that you are charging yourself for such items as depreciation, free service, bad debts, and so forth, and that you are finding your net profits in each department of your business by deducting from it the percentage of overhead that it should bear.

We have taken your statement of Assets and Liabilities as of March 31 as shown by your statement No. 3 and made them into a financial statement such as you would like to show to your bank or to your distributor.

Recording Buyers' Names

System Editor: 1—In making a car sale, does the commission on the sale show up and is there a way to keep a record of the name of the purchaser?

2—Are we correct in assuming that the inventory is not posted in the same but is kept as a separate record?

3—We are at present using a National Cash Register which has a detail strip on which every sale is printed, including Received on Account, Paid Out, Charge, etc. From this we post into a journal and from that into a ledger. Will we still be able to use the Cash Register?—E. A. Berg & Co., Little Falls, Minn.

Answer—(1) Commission or a profit on

Form No. 1 for March

Other Accounts:			
Bills payable	\$32.47	Gas department income.....	\$158.81
Free service	8.25	Repair department income	325.67
Repair expense	6.46	Access. department income	334.34
Car sales expense	26.86	Storage department income	10.25
General expense	7.50	Car sales department income.....	2,650.00
Light plant repair expense.....	9.61	Miscellaneous	3.00
Customers acct. charges	2,195.07		\$3,482.07
All cash receivable	5,418.32		
	\$7,699.54	Customers acct. credits	2,160.28
		Notes payable	\$1,800.00
		Notes receivable	75.00
		Bills payable	49.72
		Accessory stock	32.47
		Customers deposits	100.00
			2,057.19
			\$7,699.54

Form No. 2 for March

Stock Accounts:			
Gasoline	\$125.29	Other Accounts:	
Accessories	306.14	Gas stock	\$124.76
New cars	3,285.64	Accessories stock	249.31
	\$3,717.07	New car	1,868.68
		Used car	325.00
Expense Accounts:		Reserve for depreciation.....	10.00
General	\$156.43	Reserve for bad debts.....	25.00
Gasoline	128.62	Bills payable	291.84
Repair	211.61	Income-cash discount	22.36
Storage accessories	258.20		\$2,916.95
Car sales	2,318.76		
	3,073.62	All cash paid	4,517.76
			\$7,434.71
Other Accounts:			
Bills payable	639.57		
Shop equipment	4.45		
	644.02		
	\$7,434.71		

Analysis of Assets and Liabilities

ASSETS		LIABILITIES	
Permanent:		Current:	
Repair shop equipment.....	\$454.45	Notes Payable	\$6,550.00
Office equipment.....	1,184.50	Add—Accrued int.	
Gasoline equipment.....	264.80	payable	\$6,550.00
	\$903.75		
Less—Reserve for de-		Accounts Payable:	
preciation	20.00	Sundry creditors.....	\$463.42
	\$883.75	Customers' deposit.....	100.00
Current:			563.42
Cash—In bank and in office....	2,170.52	Reserve for free service.....	91.75
Accounts Receivable:		Reserve for taxes.....	91.75
Due from customers.....	\$2,740.86		
Notes Receivable	4,061.15	Surplus (Proprietorship):	
	\$6,802.01	March 31, 1917.....	\$11,470.40
Less—Reserve for bad		Profit and Loss:	
debts	75.00	One month—March, as	
	6,727.01	per P. & L. state-	
Inventory:		ment	880.38
Accessory stock	\$2,577.64		11,850.78
New car stock	6,017.72		\$19,055.95
Used car stock	290.00		
Gas, oil and grease.....	189.31		
	9,074.67		
Deposit with distributor.....	200.00		
	\$19,055.95		

Statement of Current Assets and Liabilities

	What Happened in March		Result of What Happened in March		What We Started With March 1		What We Have Left March 31	
	Debits	Credits	Increase	Decrease	Assets	Liabilities	Assets	Liabilities
Cash paid and received.....	\$5,413.32	\$4,517.76	\$895.56	.....	\$1,274.96	.....	\$2,170.52	.....
Customers accounts receivable.....	2,196.07	2,160.28	34.75	.....	2,706.07	.....	2,740.86	.....
Notes receivable.....	.....	75.00	.....	\$75.00	4,136.15	.....	4,061.15	.....
Accessory stock.....	306.14	281.78	24.36	.....	2,553.28	.....	2,577.64	.....
New car stock.....	3,285.64	1,868.68	1,416.96	.....	4,600.76	.....	6,017.72	.....
Used car stock.....	.....	325.00	.....	325.00	615.00	.....	290.00	.....
Gas, oil and grease.....	125.29	124.76	.53	.....	188.78	.....	189.31	.....
Equipment—Repairshop.....	4.45	.....	4.45	.....	450.00	.....	454.45	.....
Office.....	.....	.....	.....	.....	184.50	.....	184.50	.....
Gasoline.....	.....	.....	.....	.....	264.80	.....	264.80	.....
Deposit with distributor.....	.....	.....	.....	.....	200.00	.....	200.00	.....
Notes payable.....	.....	1,800.00	1,800.00	.....	.....	\$4,750.00	.....	\$6,550.00
Bills payable.....	672.04	341.56	.....	330.48	.....	793.90	.....	463.42
Customers' deposits.....	.....	100.00	100.00	.....	.....	.....	100.00	.....
Reserve for depreciation.....	.....	10.00	10.00	.....	.....	10.00	.....	20.00
Reserve for bad debts.....	.....	25.00	25.00	.....	.....	50.00	.....	75.00
Reserve for free service.....	.....	.....	.....	.....	.....	100.00	.....	100.00
Free service for March.....	8.25	.....	8.25	.....	.....	.....	8.25	.....
Surplus.....	.....	.....	.....	.....	.....	11,470.40	.....	11,470.40
Profit.....	.....	380.38	380.38	.....	.....	.....	.....	380.38
	\$12,010.20	\$12,010.20			\$17,174.30	\$17,174.30	\$19,159.20	\$19,159.20

the sale of a car would show up in the accounting system as follows: When the sale is made, the amount for which you have made the sale will be placed in the All Cash Received column on the debit side of Form 1 or in the Charge to Customers column on the same side, and on the credit side under Income, Sale of Cars, would be placed a like amount.

At the end of the month, you will go through this column headed Sale of Cars and note the various cars and their numbers, that you have sold. You will then turn to your cost record or invoices for these cars and determine the cost to you, which figure will determine the entry at the end of the month to be made on Form 2.

This entry will be made as follows: You will charge under the Car Sales Department Expense, an account called Cost of Cars Sold, and on the Credit side of Form 2 you will credit your Car Stock. After this entry of Sale of Cars and Cost of Cars are brought together at the end of the month, you will subtract one from the other and the difference will be your commission or profit on the sale of cars made during the month.

In order to keep a detail record of the profits made on each car, you could, of course, use a small card, putting the number of each car on these cards, what they cost you, when they were delivered and so forth, which would at all times give you detailed information, if the same were necessary.

(2) All purchases made for your inventory or for your stock are charged in the Stock account on Form 2 when the purchases are made, and at the end of the month you credit this stock whether it be cars or accessories with the cost of the goods that you have sold during the month, but the detailed inventory should be carried on a system of cards showing your purchases, from whom the goods were purchased, the cost price and the number of parts or cars, or pieces of merchandise left in your inventory.

(3) You can post from this detailed strip into Forms 1 and 2 at the end of each day which will be the identical operation of posting as you do now into a journal and from the journal into a ledger.

Carrying Accounts

System Editor: Do you keep accounts posted as in an ordinary ledger for all the items shown in the tables given—bank, car stock, reserves, etc., so that the ledger will balance? Or do you carry them in the form of tables. How do you handle tire and parts sent in for adjustment or repairs?—Tygarts Valley Motor Co., Elkins, W. Va.

Answer—In the back of the binder you should carry an account for each one of your assets as shown by the items in the table in the System Pamphlet.

For example, you would assign one sheet for your bank account, one for car stock, reserves, and so forth, and at the end of each month the totals of the charges and credits to each one of your asset or liability accounts would be posted to these sheets from the result of your month's operations.

In order to start your system, you would ascertain first all of the assets and enter these on the debit side of a sheet similar to Form 3, giving each account a separate sheet. To do this, you would ascertain your bank balance at the beginning of the month, which, for sake of example, we will assume is \$1,000. This would be entered on the debit side as Balance as of this date. At the end of the month, by referring to Form 1, you will find that you have received, we will say, \$1,500 in cash which is shown at the total column of the All Cash Received

column. This you would post to the debit side of your bank account in the rear of the binder.

Then by referring to Form 2 you will find that you have paid out during the month \$1,200, which you will post to the credit side of the Bank account sheet in the rear of the binder. By striking a balance, you will then find that you should have in your bank account \$1,300, and by checking up when your bank book is balanced, this can be proven.

All of your other asset and liability accounts should be treated in a similar manner and your ledger is in the rear of the binder with balances from month to month.

American Plant for Schafer

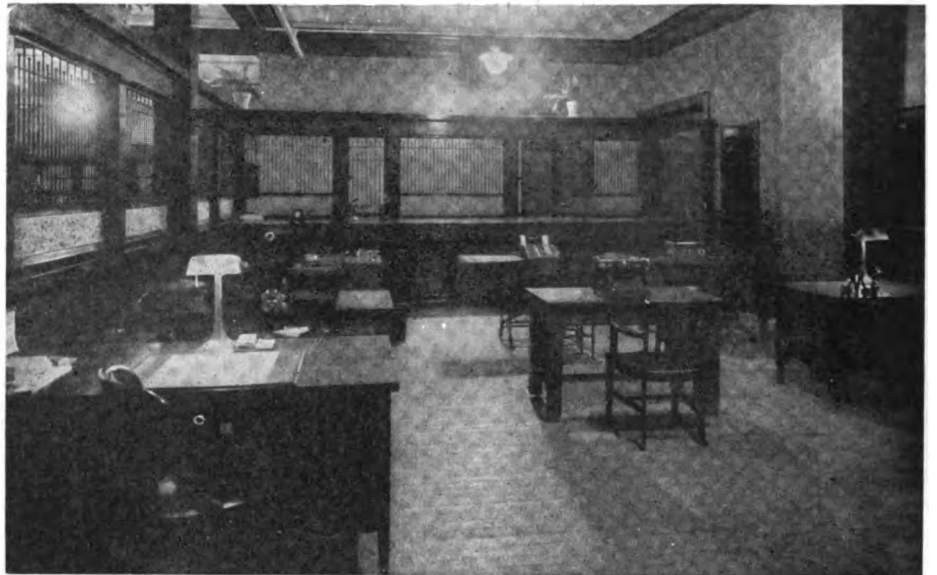
HAWTHORNE, N. J., June 1—The Schafer Ball Bearings Co. has opened a plant here and is producing the Schafer ball bearings in duplication of the European product. By the end of next month it expects to produce on the average about 3000 finished bearings per day. This company is the successor to the interests which prior to 1914 imported these bearings from Europe, and is backed by American capital and interests. C. Barthel is president and treasurer, M. Daly is vice-president, F. P. Lyons is secretary, and J. H. Zeller chief engineer. It has established a general sales department in Detroit at 901-2 Kresge Building, in charge of G. W. Fowler, sales manager.

Statement of Profit and Loss

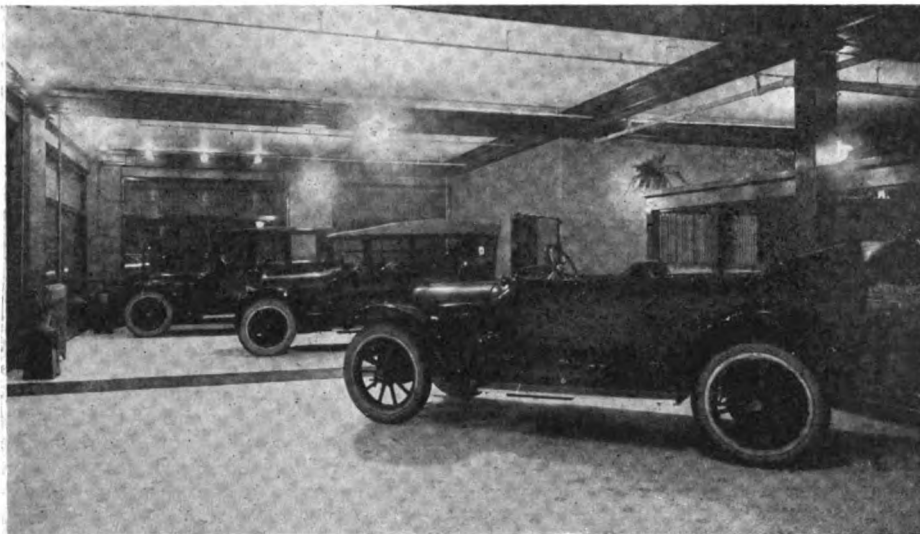
	Debit or Expense	Credit or Income	Gross Profit	Deduct. Overhead, %		Net Profit
Gasoline.....	\$128.62	\$158.81	\$30.19	15....	\$24.58	\$5.61
	211.61					
	16.07					
Repair.....	\$227.68	325.67	97.99	20....	32.79	65.20
Accessories.....	258.20	334.34	76.14	20....	32.79	43.35
Storage.....	.....	10.25	10.25	5....	8.20	2.05
	2,318.76					
	26.86					
Car sales.....	\$2,345.62	2,650.00	304.38	35....	57.37	247.01
Cash discount.....	.....	22.36				
Miscellaneous.....	.....	3.00				
	.....	\$25.36	25.36	5....	8.20	17.16
General overhead.....	163.93	.....	Gross profit 544.31	Overhead \$163.93		Net profit \$580.38
Total income.....	.....	\$3,504.43				
Less—						
Total expense.....	.....	3,124.05				
Net profit.....	.....	\$880.38				

Atmosphere Helps Sell Cars

*Rollin Travis Believes It
and His Cadillac Building
Shows It*



The business office looks like modern business. The furniture and equipment are new. The finish and lighting carry out the atmosphere idea



The salesroom floor is tiled and there are floral decorations. The semi-indirect lighting throws a soft, hazy light over the fine cars



The exterior of the building possesses dignity and conservativeness, coupled with an atmosphere of thorough up-to-dateness and efficiency

Rollin Travis borrowed \$500 when he started in business in Peoria, Ill., four years ago. He has always believed in atmosphere in the motor car business and his present \$150,000 building, not a year old, illustrates his theories.

The salesroom is a fit setting for the Cadillac. The office looks like modern methods and not last-century business. The exterior of the building is dignified and conservative. The accessory store bears the marks of modern merchandising and service.

The shop is modern and clean. The cars that are being repaired are in an orderly arrangement and not in a maze of scattered parts. The big beams in the postless rooms indicate solidity and up-to-date-ness.

The whole atmosphere is one of snap, efficiency and service. It suggests to the owner and prospect that this is an ideal place to trade.

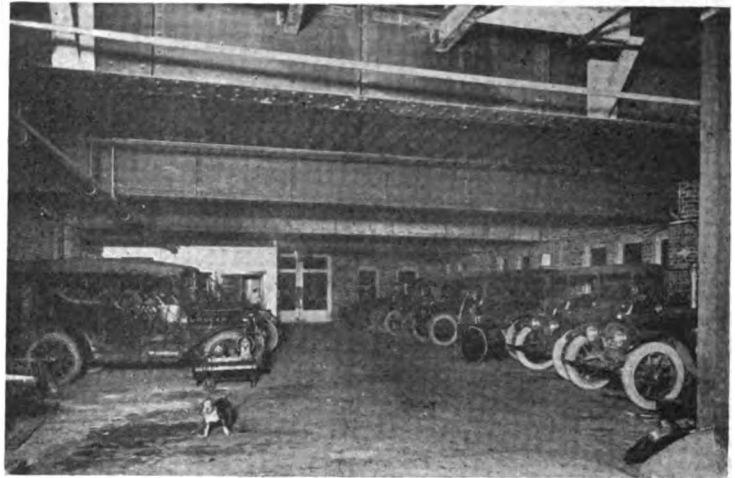
The store would hold just as many accessories if it were not spotless. The salesroom would contain cars just as well if it were not mopped and shining, and the mechanical end of the business might run just as well were it less orderly.

But the reverse is true. Everything is in order and clean. It is more than that: The lighting is semi-indirect, there are floral decorations in the salesroom and the car spaces are numbered. All this creates an atmosphere. It makes the place seem better than if it did not have this atmosphere.

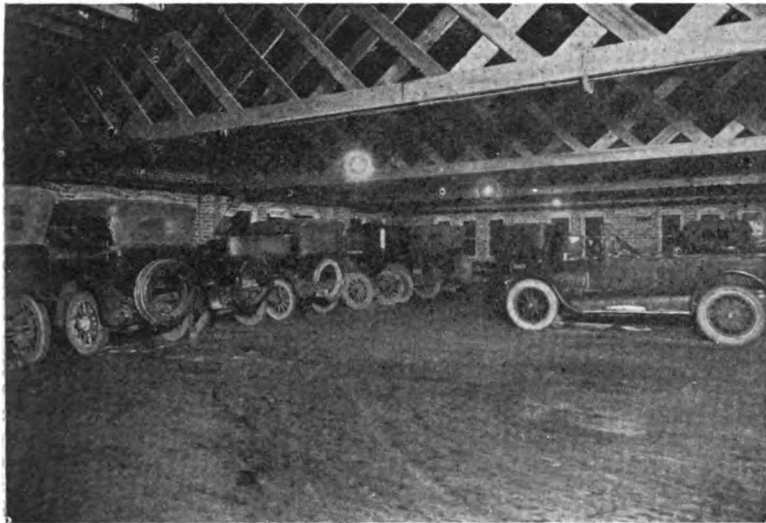
Atmosphere helps sell cars. It pays to put atmosphere into a business. It is a money investment that yields a big return.



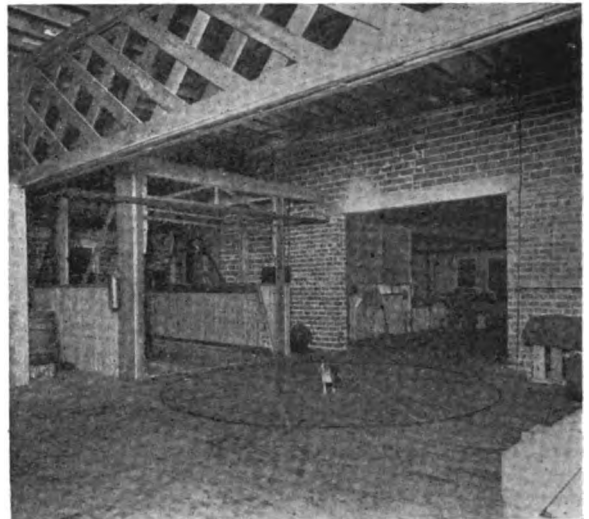
The accessory store stands out conspicuously as a mark of the modern merchandiser



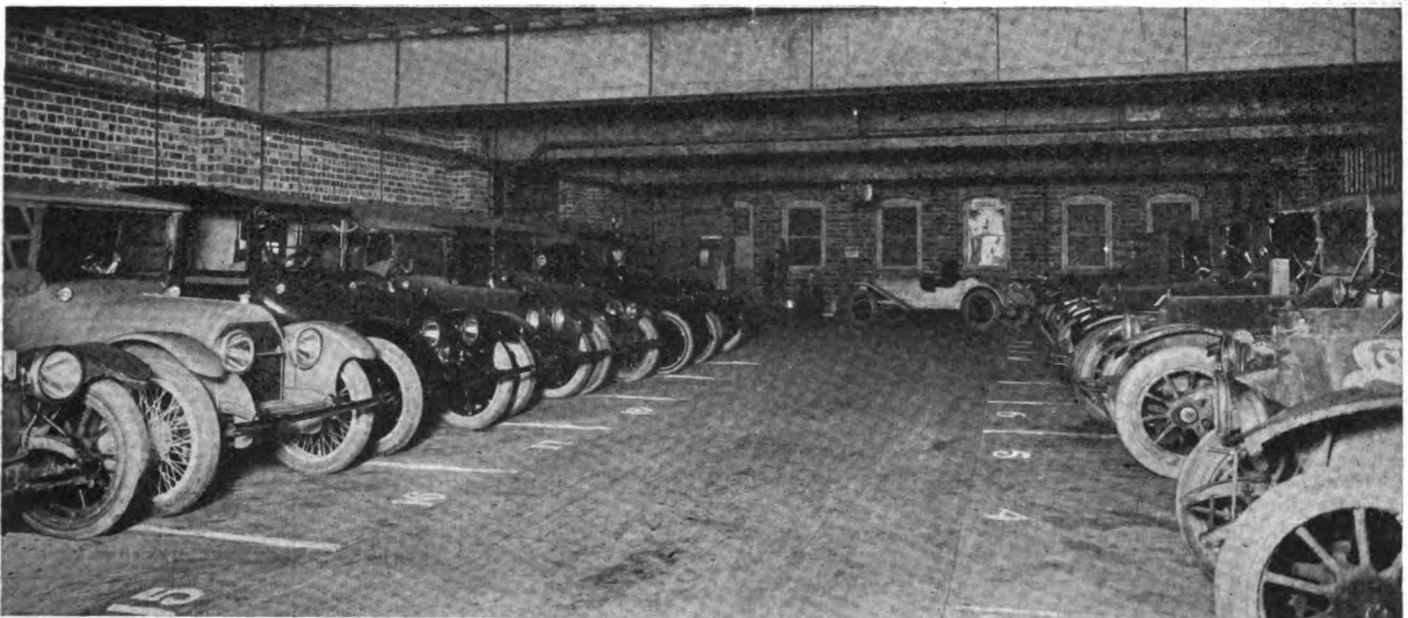
The shop is equipped with modern machinery. The eye of the visitor sees that his needs have been anticipated



The cars that are in for repairs are neatly stored in well arranged rows. The floor is devoid of scattered parts



A turntable on the second floor near the big elevator is another modernism



Overhead big beams support the second floor and the space gained through the lack of posts more than pays for the cost of the big beams. The roomy appearance has a wonderful effect on the eye of the man who is accustomed to forests of posts on garage floors

Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge, but be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a two-cent stamp and your correct name and address. Write plainly.

Causes of Peculiar Knock

Editor Motor World: I am running a model 28.5 Velie Six, with Continental engine. It has been run only 3229 miles, and in the last 500 miles suddenly developed a peculiar noise which I am at a loss to explain. The motor has always been plentifully supplied with oil, and is free from carbon. All bearings are tight. The noise starts at about 23 m.p.h. and increases at higher speeds. It is rather a rattling noise, and seems to be in all cylinders alike. I have had several good mechanics look over the car, but none of them seems to be able to figure out just what causes the noise. One of them claims that it is piston slap, but I think he is wrong, as I have examined the pistons, and they seem to have very little play in the cylinders. The cylinders should not have worn so badly in 3229 miles' running as to cause a noticeable noise from piston slap. Besides, this noise seemed to start all at once, while it would have appeared gradually if caused by piston slap.

It sounds to me more like a spark knock than anything else, but the car is equipped with Remy automatic spark advance, and the adjustment has not been tampered with. With this automatic

spark advance I do not see how I could have a spark knock at high speed without having one at low speed or on a hard pull.—B. Allen, Allen Auto Co., Port Gibson, Miss.

Answer.—There seems to be only two possible causes for the difficulty you describe. One is incorrect carburetion and the other is that the spark is advanced too far.

Remedy for Maxwell Electrical Troubles

Editor Motor World: Will you please answer the following questions in connection with a 1915 model Maxwell 25, Simms-Huff equipment. The generator does not generate, with brushes making good contact and mica cut down on commutator, all connections making good contact and everything is clean. I have no storage battery on the car so I do not know if the starter works. I am very much pleased with Motor World.—Wend Black, Jr., Balfour, N. D.

Answer.—The generator will not operate so long as the storage battery is removed. If you will put a storage battery in your car, you will have no more trouble.

See that the fan belt is tight and that the idler pulley is working properly. You will find that the web belt, which may be obtained from any Maxwell service station, will be better than a leather belt. The web belt is a fabric type.

You may determine whether the generator is producing current by running a wire from the large terminal of the generator to the field terminal, which is a small one. An ammeter should be placed in this circuit. If no ammeter is available, you can test the circuit by pulling the wire away from the terminal and noting whether a good spark is being delivered or not.

Edison Battery and the Electric Starter

Editor Motor World: Can you explain why none of the car manufacturers use the Edison storage battery in connection with their starters?

If I understand it right, the generators on some cars will not change on Edison batteries. Can you give us a list of the generators which will change on Edison batteries? With a four year generator it looks like it would be the battery to use.—W. E. Shirk, Shirk Auto & Machine Co., Ida Grove, Iowa.

Answer.—The Edison Storage Battery Co. has written us the following letter in response to your inquiry:

"We would state that the reason why we are unable to offer an Edison battery for use in connection with electric starters is that the electric starters have been designed for the lead battery and as the Edison battery characteristics are somewhat different, we cannot be sure that the operation will be successful."

TWO LETTERHEADS WHICH ATTRACT

OLDSMOBILE MOTOR CAR AGENCY

RACINE AND GOODYEAR TIRES

H. P. PAYNE & SON

MOTOR LIVERY—GENERAL TRUCKING

GARAGE

TELEPHONE 158 QUOGUE

Quogue, N. Y.

Above — Full - size design for man who does a general business, including livery and trucking

SEIDEMAN'S GARAGE AND MACHINE SHOP

AUTOMOBILE LIVERY, STORAGE, REPAIRING, TIRES, ACCESSORIES
BATTERIES RECHARGED

410-412 SOUTH BRIDGE AVENUE
NEWARK, N. J.

TELEPHONE

Left—Half-size letterhead for garage which specializes on repair work and battery charging

SCIENTIFIC CONSTRUCTION

GARAGES □ □ □ SHOWROOMS □ □ □ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

TWO PLANS FOR SMALL DEALER

Answer to Cumberland Garage

The plan in Fig. 1 is drawn as requested with a strip 40 by 70 ft. at the rear unutilized, and the plan in Fig. 2 covers the whole plot. A small service station is included in both plans.

There is no reason why the small plan may not be utilized at first and later remainder of the plot built upon. In the smaller building no particular arrangement need be followed in storing cars because the space is so small that it will be most convenient to pack them in as shown. But in the larger building it is better to place two rows on one side of an aisle and one row on the other.

Showroom, accessory store, stockroom and office are the same in both cases. The accessory store is placed in one corner of the showroom in order to economize space. However, it is a much better plan to have it in a separate room so that the customers to this department will not interfere with a prospect concentrating his attention on the cars before him.

Have You Backbone?

Then read

Pages 9, 10, 11 and 12

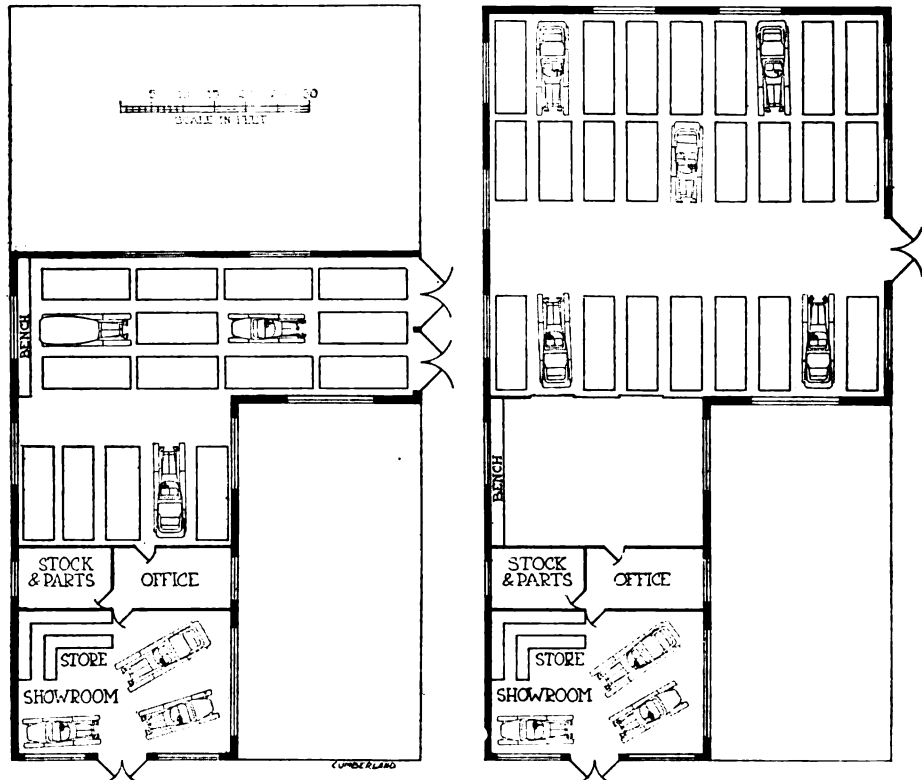
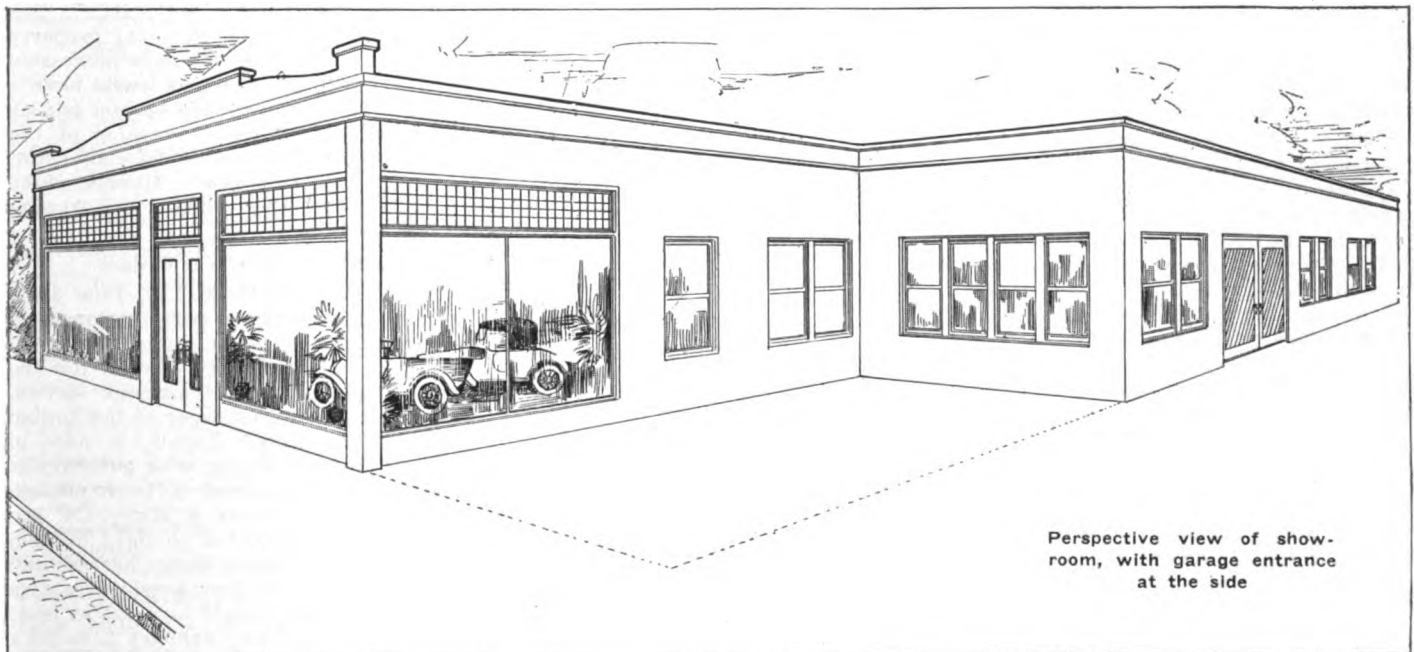


Fig. 1—Left—Showroom, accessory store, shop and garage covering part of plot.
Fig. 2—Right—Building covering complete plot



Perspective view of show-room, with garage entrance at the side

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Damage to Cars on Dead Storage

Editor Motor World: I have a rather peculiar claim for damages for new cars on dead storage. A house in the trade stored with me and with several other houses. The cars were in storage for four or five months and those stored with me, on being washed and prepared for delivery to customers, were found to have the varnish "flat," requiring revarnishing and in some cases recoloring and revarnishing. I have had a varnish expert examine the damaged cars and he can discover no cause. The owners' representatives inspected the building before any cars were put in it and their sending goods thereafter is a tacit approval of the conditions.

Inasmuch as I do not know what caused the damage I feel that it is not due to any carelessness of my employee. It is possibly due to inferior varnish used at the factory; but the owners claim that if this were the case, the cars in other warehouses would all be affected alike. I make liberal allowance of claims due to loss of parts and damage from handling.

In view of the terms of the storage receipt, copy of which I inclose, do you consider me legally responsible, or is it only a moral responsibility? If so, do you consider I am morally culpable? I want to give and have a square deal. On whom is the burden of proof in such a matter?—Charles C. Tough, New York.

Answer—As a warehouseman does not undertake to keep goods safely, but only to use ordinary diligence in keeping them, he is not liable for loss arising from theft or accident for which he was not in fault. If a warehouse is reasonably safe, fit for its purpose, and free from defects which could have been discovered with ordinary care, that is enough. Of course a warehouse should be equipped with modern appliances and improvements for the protection of property against damage by theft, fire, rats, heat and other destroying agents. Thus, if his warehouse is for cold storage, he must keep the necessary low temperature, or if for some good reason that is impossible, he must give due warning to his customers to remove their property.

If the owner of goods knows of any defects in the warehouse, and fails to pro-

tect his property, his contributory negligence will relieve the warehouseman from liability. As to insurance, I would say that, although there is no obligation to do so, a warehouseman may insure the goods stored by him. If a warehouseman desires, he may make himself liable for anything that may happen, by contract, or on the other hand excuse himself from liability for everything except the positive negligence of himself or his employees.

If the damage to these cars were caused by improper temperature or the like, I think you ought to stand the loss. If, on the other hand, defective varnish was the cause, I do not think the owners ought to complain. Of course, if their statement that cars stored in other warehouses were undamaged is true, it would seem to put the blame on you.

When the property owner shows that he puts his property in charge of a warehouseman, and it was received back in a damaged condition, it is then up to the warehouseman to show that he used reasonable care to protect the property from damage in order to relieve himself from liability. What reasonable care is will depend to a great extent on what other warehousemen in his immediate vicinity do to safeguard the same kind of property.

To Stop Bad Checks

A MODEL law to curb the so-called bad check evil, if not to eliminate it entirely, has been placed on the Wisconsin statute books through the efforts of the Milwaukee Association of Credit Men, the membership of which includes representatives of every large motor car distributing house in Milwaukee. The new law makes it prima facie evidence of intent to defraud to make, draw, utter or deliver a check which has not sufficient funds to back it. The statute reads:

"Any person who, with intent to defraud, shall make or draw, or utter or deliver, any check, draft, or order, for the payment of money, upon any bank or other depository, knowing at the time . . . that the maker, or drawer, has not sufficient funds in, or credit with, such bank or other depository, for the payment of such check, draft, or order, in full, upon its presentation, shall be guilty of a misdemeanor, and punishable by imprisonment for not more than one year, or by a fine of not more than \$1,000, or both fine and imprisonment.

"As against the maker or drawer thereof, the making, drawing, uttering, or delivering of a check, draft or order, payment of which is refused by the drawee, shall be prima facie evidence of intent to defraud and of knowledge of insufficient funds in, or credit with, such bank or other depository, providing such maker or drawer shall not have paid the drawee thereof the amount due thereon, together with all costs and protest fees, within five days after receiving notice that such check, draft or order has not been paid by the drawee.

"The word credit as used herein shall be construed to mean an arrangement or understanding with the bank or depository, for the payment of such check, draft, or order."

No Lien in Illinois

Editor Motor World: What can I do with a man who owes me a bill that has been running 2 years? This bill is for storage, work and repairs. There is a mortgage on the car, but the mortgage was not put on until after my bill was due. The car has been in my possession all the time. Is my claim ahead of the mortgage?—Green Valley Garage, Green Valley, Ill.

Answer—There is no garagemen's lien law in your state, and its courts have decided that dealers have no lien on motor cars for storage or supplies like gasoline and accessories. There is a general law, however, which gives dealers a lien for improvements on personal property applying only when they have possession of it. Under this law you would have a lien for the repairs made by you and as long as you retained possession of the car, I think your lien would come first. I do not know of a case in Illinois on the question of whether a lien or a mortgage comes first.

May Secure War Orders

GRAND RAPIDS, MICH., June 3—It is possible that two or three motor truck manufacturing companies in this city will secure orders for motor trucks for the United States war department service. George F. Sweet, manager of the United Motors Co., Grand Rapids, is now in Washington consulting with government officials about the kind of truck needed. The Michigan Hearse & Motor Co. has also been asked to bid on light one-ton trucks. The company makes hearses and ambulances, but W. Ioor, president, states that the company could turn out at least 200 one-ton trucks by January 1, to fill a government order.

They Know



Read These Letters

I HAVE just re-enlisted in the army of Motor World subscribers and believe that you would probably like to know that I subscribed again because I could not do without it.

I placed my first subscription because I thought that Motor World would increase my business, at that time a first class garage and repairshop. This Motor World did, and not only from a business standpoint but as an educational proposition it is excelled by none.

I am now in the retail sales department of one of the leading high class cars and I find that whatever the position, Motor World has important information for all.

The repairshop short-cuts, electrical diagram and explanations and sales editorials are all separately worth the price of one year's subscription.

I know for a fact that I have been greatly benefited in my salesmanship by the Reilly stories, which are not stories but good, sound, business points.

Motor World is looked forward to weekly with as much anticipation as supper after a hard day's work. Should you like a testimonial any time as to the business-getting qualities of your publication, do not hesitate to use my name.—BYRON BRAINARD, Sales Department, Winton Co., Los Angeles.

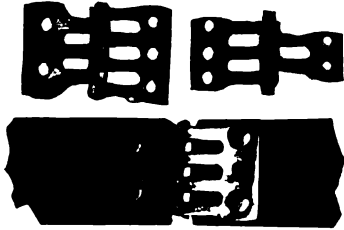
AT the time that our company first subscribed for Motor World we were located in a very handsome garage in Tacoma, representing the Cole 8 car. About the same time that our subscription expired with your company our finances and chances for remaining in the automobile business in Tacoma automatically became exhausted and the reason for our misfortune is very easily explained in the following sentence:

It cost us, roughly, \$7,500 to find out that we were pursuing the wrong methods and that we were intermingled with a bunch of dealers who refused to co-operate and realize the value of modern and up-to-date ideas. Very short and sweet, but it tells a long, sad story.

I am now connected with an automobile company in the capacity of salesman, and am trying to recuperate from a blow that never should have landed. As far as the value of the Motor World is concerned, you can quote me as saying that if we had paid more attention to ideas suggested by your magazine, this never would have occurred. To make a long story short, we had plenty of money but no system, no service, no co-operation, and last but not least, no dealers' association.

My advice to dealers just starting in this business is to subscribe for the Motor World and read every issue very carefully.—HARRY HUNTER, Tacoma, Wash.

Accessories



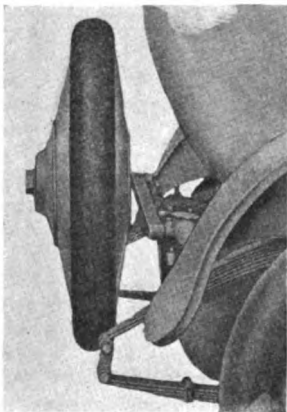
CAMPBELL HINGE BELT CONNECTORS

Rivet hinged belt connectors make it especially easy to disconnect the belt, as it is simply necessary to withdraw a pin made of rawhide. The pin cannot unlock. The connectors are $\frac{1}{2}$ in. and 1 in. wide. Price, 10 cents complete with rivets.—Perkins-Campbell Co., Cincinnati.



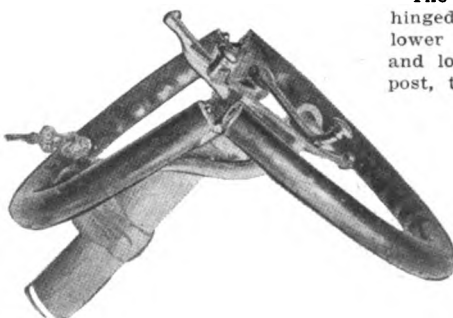
CREW-LEVICK TIRE CHAINS

This device consists of a double-ended bracket attached to the rim under the shoe, and chains, stretching across the tread of the tire, are fastened to it, there being a certain amount of slack. The number of chains is optional. In wet weather two or three may be used or on muddy roads more may be employed. The chains are easy to attach and easy to remove and do not interfere with changing the tire. They are made for 30 or 32 in. clincher rims and will fit the Ford, Maxwell, Chevrolet, Vim, etc. Complete set for two wheels, \$4.80.—Crew-Levick Co., Philadelphia.



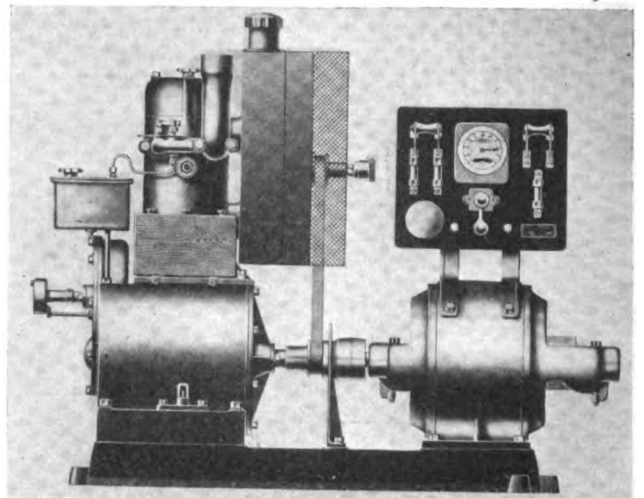
DRAVER TIRE CARRIER

An attractive carrier which completely encloses the wire wheel. It consists of an ordinary tire cover and two end plates which cover the inside of the wheel. It may be used for one or two tires and is adaptable to demountable rims as well as wire wheels.—D. R. Draver Co., Richmond, Ind.



FOLDING STEERING LOCK

The steering wheel rim is hinged at the center, the lower half folding down and locking to the steering post, thus it offers the advantage of a tilting wheel and also is a protection against theft. It may be installed on any make of car.—Carl L. Winberg, 1105 Mallery Bldg., Chicago.



GENCO-LIGHT

A simple and complete garage or house lighting plant consisting of a single-cylinder, water-cooled engine direct-connected to a generator on which is mounted the switchboard containing ammeter and fuses. The engine is cooled by a radiator, and fan driven from the armature shaft. The whole is mount-

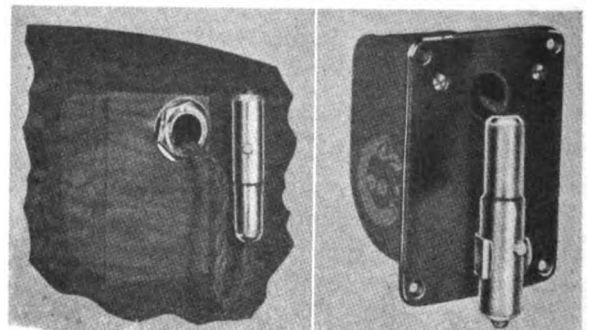
ed on a cast iron base so that installation is especially easy. The unit is self-starting and may be operated on gasoline or kerosene. It will produce current at 3 cents per kw. It may be used as a battery charger and also for delivering power to line shafting. It offers an opportunity to dealers in country districts.—General Gas Electric Co., Hanover, Pa.

K-B-C KEROSENE SYSTEM

Designed for Ford cars, it consists of a single unit intake and exhaust manifold, one supplying heat to the other, and a double carburetor, one for gasoline for starting and the other for kerosene. Price \$40 or \$32.50 in exchange for the old carburetor.—Kerosene Burning Carburetor Co., Detroit.

WATSON VENTILATOR FOR FORDS

A ventilating windshield panel designed to replace the lower glass in the Ford windshield. Price \$5.—Glass-Evans Auto Co., Grand Island, Neb.



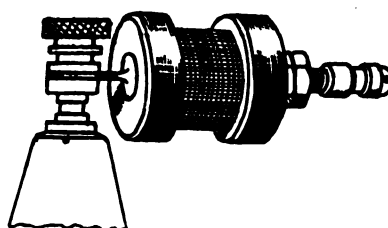
CUNO AUTO CIGAR LIGHTER

Nickel plated cigar lighter with 6 ft. of cord which automatically reels up when not in use. The reel is mounted in the

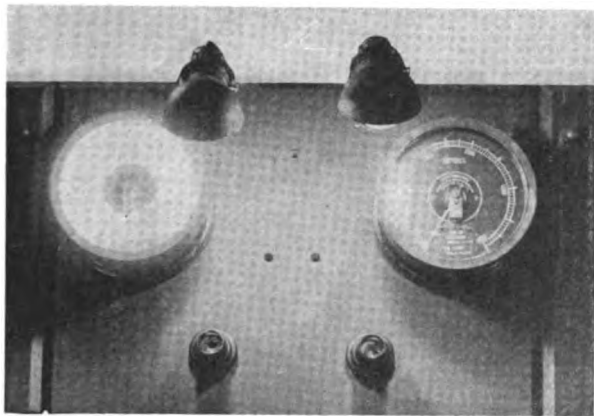
car body and is out of sight. Cigar lighter, \$1.90; with contact plug, \$2; with reef for mounting on dash or tonneau, \$5.—Cuno Engineering Corp., Meriden, Conn.

SPECO PLUG ENERGIZER

A spark gap, placed between the spark plug and the high-tension



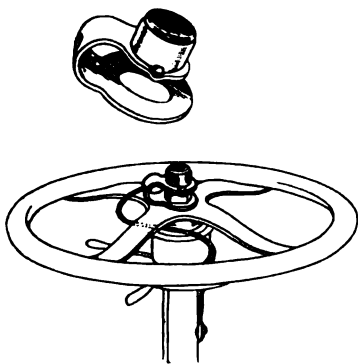
sion cable. It is designed to increase the intensity of the spark at the plug and to prevent the formation of carbon between the points because of the high heat of the spark. Increased power and economy are claimed. A further advantage is that it is possible to see at a glance whether all the plugs are sparking or not. Price, \$1.—Speco Mfg. Co., 1777 Broadway, New York.



WESTINGHOUSE BLACK-DIAL METERS

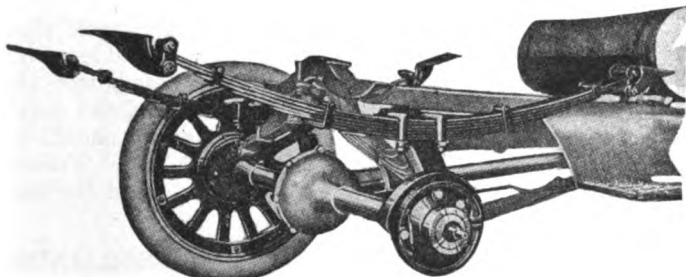
These meters have black dials, with figures, scale and pointer in white and are superior be-

cause they prevent the glare which is usual with a white dial. The difference is admirably shown in the photograph.—Westinghouse Electric & Mfg. Co., Pittsburgh.



HANDY HORN BUTTON

To bring the horn button on Fords within quick and easy reach of the driver the Handy push button has been developed. This button, which can be attached and the wire connected in five minutes, is clipped under the nut at the top of the steering column. The push button that comes as equipment on the Ford is inaccessibly located on the column beneath the wheel. The Handy button sells for 50 cents. Dealers are supplied with counter display cards holding ten buttons each.—The Francis-Hand Co., Cleveland.



OLSSON EXTENSION FOR FORDS

A method of lengthening the Ford chassis 24 or 30 in. by adding to the drive shaft,

the torque tube and frame side members. It may be readily installed. Price, \$50.—Swedish Crucible Steel Co., Detroit.

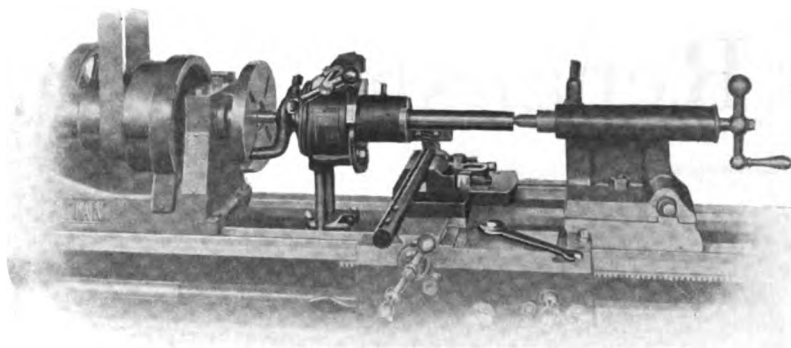
LITTLE GIANT CONVERTER

The Model A rectifier is designed for charging from 3 to 18 cells from an a.-c. supply. In addition to the converter itself, there is a switchboard with switches, ammeter, fuses, etc., the converter being carried on the frame on which the switchboard is mounted so that the whole is a compact unit. This machine has a 500-watt capacity and will supply from 6 to 36 volts. Price, \$115 to \$132.25. Other models from 3 kilowatt to 6 kilowatt with cell capacities from 24 to 60, \$138 to \$262.20. The model A is made for 110 volts and models B, C and D for

110 or 220. They are made for either 25 or 60 cycle current.—Little Giant Converter Co., Arcade Building, Cleveland.

THE FORDALARM

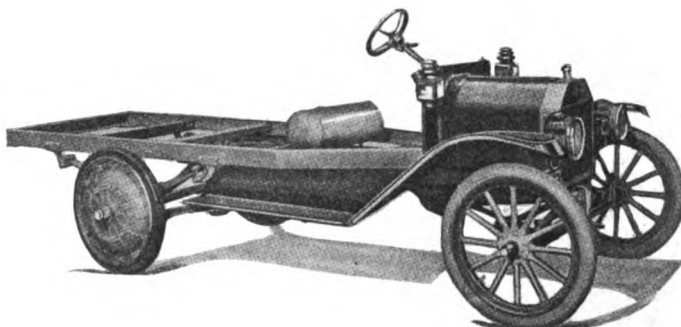
An electric horn push button, mounted just beneath the steering wheel, on the end of the gasoline control lever. It is attached by sliding it in place over the end of the lever, and tightening a clamp screw. The position is most handy, as in emergencies the driver's hand is usually on the throttle, and can then sound the horn and close the throttle at the same time. Price, \$1.—Detroit Novelty Co., Marquette Bldg., Detroit, Mich.



FOX LATHE KEYSEATER

An attachment for cutting straight and Woodruff keyways, and squaring shafts. It is

mounted between lathe centers. It is necessary to remove the tool carriage. Price \$75.—Sunderland Machinery & Supply Co., Omaha.



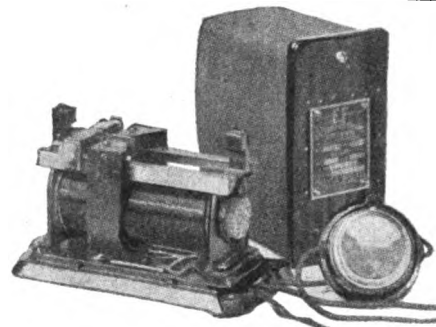
LUCKE FORD ATTACHMENT

It gives the Ford a 1 to 1 1/2-ton capacity. It consists of a heavier frame, springs and steel wheels with solid tires, a solid rear axle is used, the Ford axle

driving the rear wheels through internal spur gears on the wheels, which mesh with a pinion on the ends of the live axle driving shaft. Tires are 32 x 3 1/2. Price, \$275.—Lucke-Douglas Co., Minneapolis.

F-F BATTERY BOOSTER

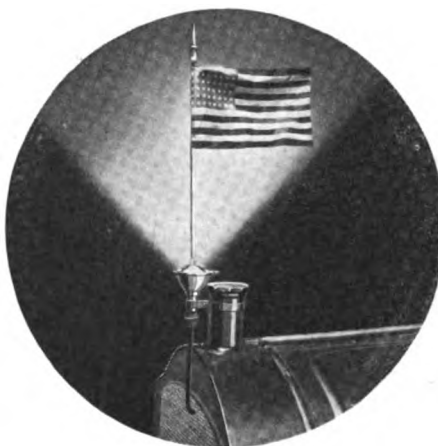
A rectifier for charging batteries from an a.-c. supply. It works independently of the condition of charge in the battery. Price \$15 to \$18, including ammeter.—France Mfg. Co., Cleveland.



FLAGLITE FLAG HOLDER

The Flaglite flag holder serves a four-fold purpose: (1) It holds a small silk American flag; (2) it illuminates the flag at night;

(3) it also illuminates the Moto-Meter, a feature which is necessary when so many modern cars have no side lamps; (4) it is an inspection lamp. The device clamps to the radiator filler and is adjustable to any size pipe. The complete device consists of a small electric lamp and reflector, the latter being constructed on the principle of the "flood light," which is used for illuminating large areas. The lamp is substantially constructed of brass and is silver plated both inside and outside. The lamp is quickly detachable for inspection purposes. The price, including a silk American flag, is \$2.—The Flaglite Co., Schofield Building, Cleveland.



Repairshop Shortcuts *From The Motor World Roadman*

(No. 1206) PNEUMATIC DOOR OPENER

Much time is lost in opening and closing the repairshop door not provided with an opener. In winter heat is lost through leaving the door open. A mechanical door opener will soon pay for itself. The door opener illustrated herewith is operated by compressed air. It consists of a piston operating in a metal cylinder and connected to a system of levers attached to the door. Air pressure applied to the piston forces it down the cylinder, pulling the door open through the action of the levers. The door is closed by the action of a weight, attached to the door by a rope running over a pulley, when the pressure is released from the piston. The valves admitting the air to the cylinder may be placed at any convenient point in the building, preferably in the office. At the sound of a horn the door is opened.—Harry A. Scott Co., Kalamazoo, Mich.

(No. 1207) DISTRIBUTOR POINT GRINDER

The difficulty in refacing distributor points is to take off the minimum amount of metal necessary to remove the pits and to get the points flat and parallel. A small grinder attachment makes refacing easy and accurate. It consists of a swinging hanger attached to the grinding head and holding the point in an adjustable arm. The grinder must possess two essentials, first, the stone must be as fine as possible and true, and second, the point must be held perpendicular to the wheel. In addition, the point must just lightly touch the surface of the wheel.—H. J. Sherlitz, Cadillac Motor Car Co., Kalamazoo, Mich.

(No. 1208) ADJUSTABLE LAMP HANGER

By winding the lamp cord of the bench lamp several times around a curtain rod fastened to the ceiling a lamp hanger is provided that permits the lamp to be suspended at any desired height about the bench. The light may also be used as an inspection lamp and carried to the job, provided the cord is made long enough. The curtain rod should be extra heavy, and is suspended exactly as

though it were carrying a curtain.—H. J. Cooper, Dodge Brothers, Kalamazoo, Mich.

(No. 1209) CYLINDER TESTING GAGE

This gage offers a positive method of determining the eccentricity of an engine cylinder, or of determining whether the cylinder is bell-mouthed. It is a dial indicator, divided into .0001 graduations, and is mounted on a standard fastened to a metal base. To test the cylinder the indicator is fastened to the standard in such a position that the needle starts reading on the middle of the scale when the gage is placed in the cylinder. This prevents the needle from being pressed past the maximum reading or dropping to zero. Then the maximum and minimum readings are taken, and the amount the cylinder is out of true is determined. The gage is invaluable for lapping or regrinding work.—Universal Tool Co., Detroit, Mich.

(No. 1210) TOWING SKID

A simple steel sled, or skid, may be used instead of a towing truck to bring home the car that has had its rear wheel broken. The skid comprises a wooden block mounted on a steel runner 6 in. wide and about 2½ ft. long. The skid is placed beneath the brake drum of the broken wheel and held in place by a chain connected to the front spring shackle.—Bert Borden, Harry A. Scott Co., Kalamazoo, Mich.

(No. 1211) SAFETY AUXILIARY JACK

One requirement demanded by most axle manufacturers is that a jack be never placed so that the truss rod carries the car's weight. A simple attachment to an ordinary auxiliary jack accomplishes this requirement. A metal strap bolted to the jack is bent so that the axle is supported and the truss rod is free. A similar attachment might be made for the common lever jack.—H. J. Sherlitz, Cadillac Motor Car Co., Kalamazoo, Mich.

(No. 1212) QUICK-ACTING AIR JACK

Quick action with little exertion is effected by this jack. It is a pipe cylinder having a pipe cap at each

end and carrying a leather-cupped piston that holds the standard and crutch for lifting the car. The feature of this jack is the method of locking the standard in the raised position, this being done by a dog snapping into a notch in the standard. The jack is lowered by opening a relief valve.—J. C. Harris, The Gibson Co. (Overland), Indianapolis.

(No. 1213) FORD SPARK COIL TESTER

Accurate adjustment of the Ford coil, when on the car, is difficult, as there are so many elements entering into the adjustment. By removing the coil and adjusting it on a magneto known to be in good condition the coil may be accurately adjusted. The device shown herewith comprises an old Ford engine block, cut away with the exception of the rear main bearing, with the crankshaft cut to form a hand crank and the magneto left intact. The magneto is connected direct to a dummy coil box mounted on the bench, and the coil to be tested is placed in this box. The secondary is connected to an old spark plug core that forms an adjustable spark gap. By cranking the magneto the character and frequency of the spark may be noted. The spark should be hot and regular.—S. R. Sithers, Barr's Service Station, Ford Service, Davenport, Iowa.

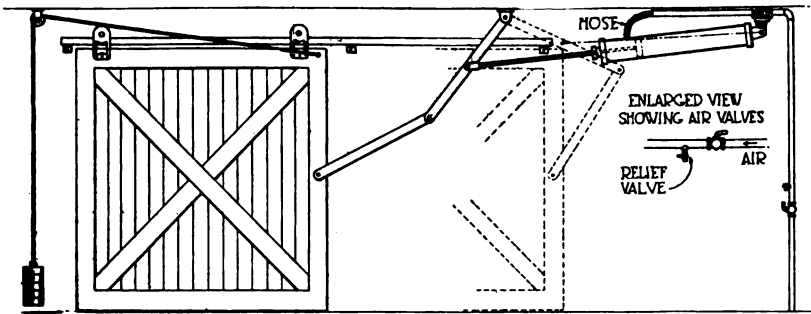
(No. 1214) TRY-SQUARE FOR LINING UP WHEELS

A large try-square is a simple tool for lining up front and rear wheels. A piece of iron approximately 1 x ¼ in. x 16 ft. long and another 5½ ft. long are welded at right angles. With this device the rear and front wheels can be aligned; also the two front wheels and the two rear wheels.—P. J. Thue, Cannon Falls, Minn.

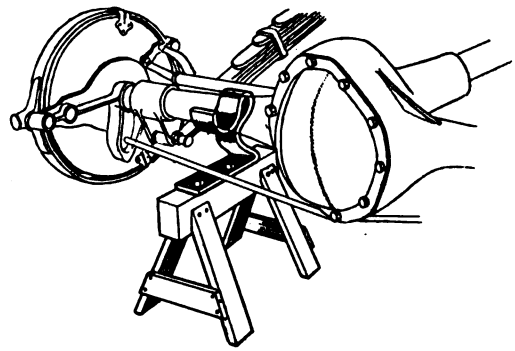
Scrap Metal Prices

NEW YORK, June 2—Following are prices paid by New York dealers for scrap metal during the past week. They are from Iron Age:

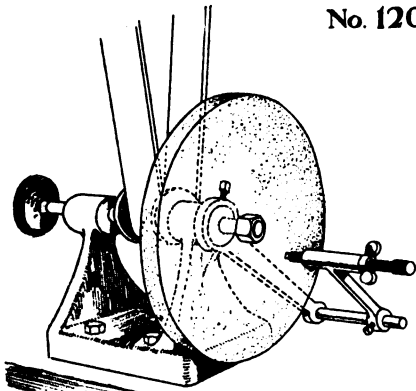
	Cents Per lb.
Copper, heavy and crucible.....	28.00
Copper, heavy and wire.....	27.00
Copper, light and bottoms.....	25.50
Brass, heavy.....	18.00
Brass, light.....	14.00
Heavy machine composition.....	24.50
No. 1 yellow rod brass turnings.....	18.00
No. 1 red brass or composition turnings.....	19.50
Lead, heavy.....	9.50
Lead, tea.....	8.75
Zinc.....	7.00



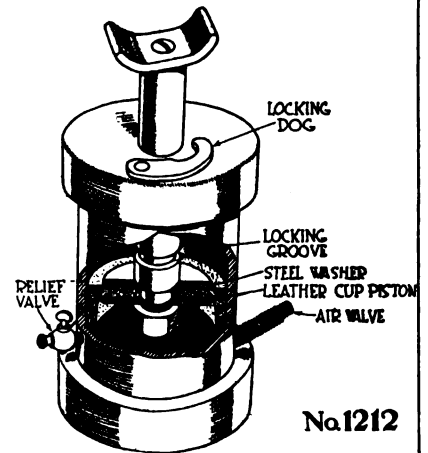
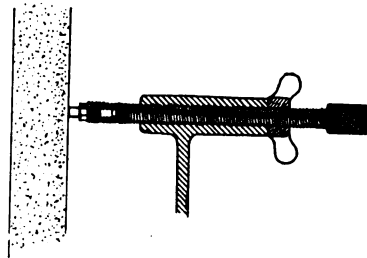
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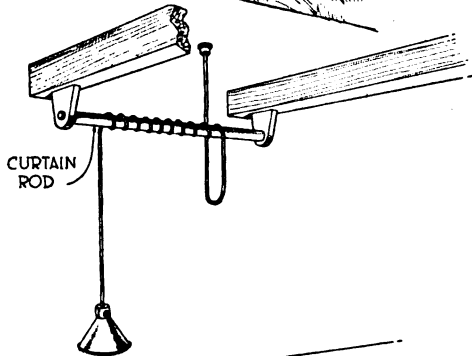
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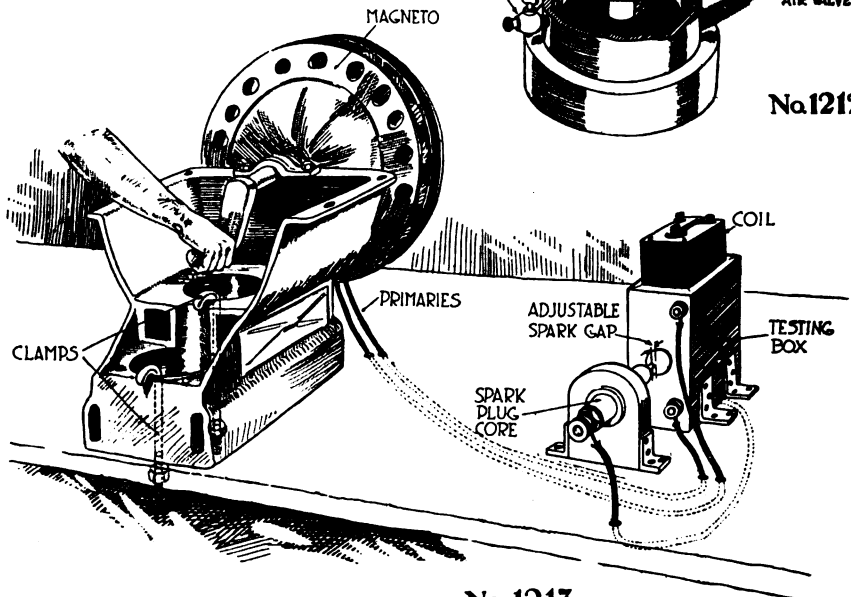
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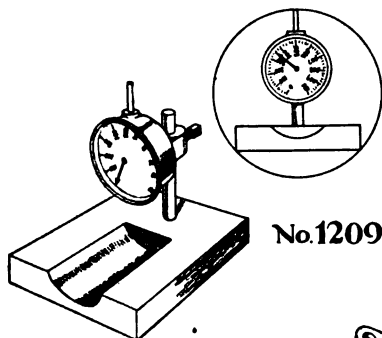
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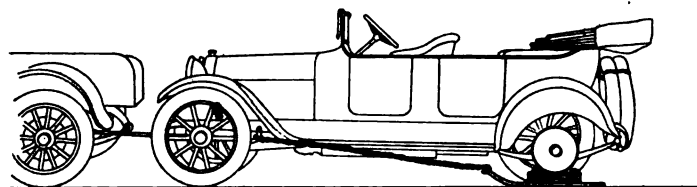
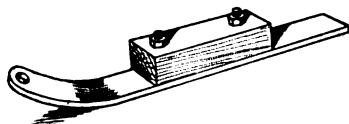
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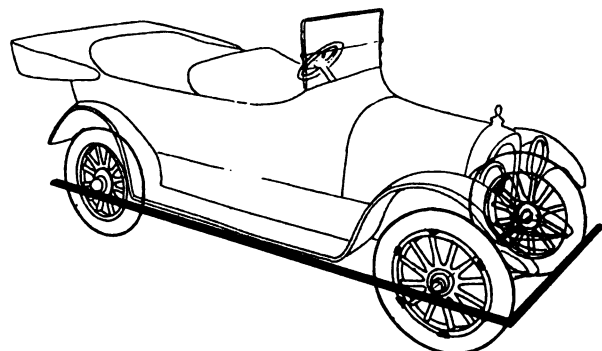


No. 1209



No. 1210

STEEL SHOE



No. 1214

Editorial Observation

Don't Let the Rich Men Get Liberty Bonds

NO greater mistake could be made than to assume, even for a second, that the purchase of a Liberty Bond is a contribution to the government.

It is not. It is an investment.

The purchase of a bond is *the best investment any man can possibly make*. It is the purchase of the United States Government's promise-to-pay, with interest at the rate of 3½ per cent. The government borrows from individual citizens the money it requires to carry on the war. It returns that money, with interest. That is all there is to it.

Just how good an investment these Liberty Bonds are was well brought out at a meeting of the Merchants' Association of New York last week by Otto H. Kahn of the international banking firm of Kuhn, Loeb & Co.

These bonds are exempt from all taxation. Ordinary incomes are taxed; the income from Liberty Bonds is not taxed.

Taking the amount that would be subtracted from an income of \$100,000 to pay the normal income tax, and adding to it the interest that would accrue from

\$100,000 worth of Liberty Bonds, makes such an investment return a total of 5 per cent. On an income of \$200,000 it is nearly 6 per cent; on \$500,000 it is nearly 8 per cent.

Men who are well off realize how valuable this feature is. They are buying Liberty Bonds for large amounts to avoid the income tax and to make an investment that brings returns in many cases greater than could be brought by other investments.

"Don't let the rich men get the Liberty Bonds," said Kahn. "You buy them; then if the rich men find they must have them, let them pay you a premium for them."

"You buy them"—that is the point to get in mind. It is *your* obligation. *You* must see that our soldiers who cross the seas to fight for democracy and the defeat of autocracy are the best fed, the best clothed and have the best ammunition.

That is what the Liberty Loan is for. It is to put clothes on the backs of our boys and food in their stomachs and powder and bullets in their rifles.

"Don't let the rich men get the bonds. You buy them."

Is This Your Town?

(A member of the editorial department of Motor World spent one day in a city within 100 miles of Detroit. Here is what he found.)

DEALERS are selling their 1917 cars by 1492 methods.

Not selling them—disposing of them. Which is different—quite different.

The dirty windows of their showrooms reflect the dirty methods of their business.

Why?

Because their dealers' association is sick—worse than sick—dead and unburied.

This city has grown—and is still growing.

It is a beehive of industries.

It is the home of ninety-three manufacturing establishments.

Yet a banker told one of these dealers that the dealer business had degraded to a mere horse-trading proposition. And if the bankers are not with the dealers, may the Lord help them.

They lack confidence in brother dealers. They suspect their brothers of giving long prices for used cars—of throwing in tires, tubes and spotlights to close a sale—and they won't get together to clean house.

No wonder their showrooms are dirty—cluttered up with odds and ends. No wonder shops are prehistoric in their equipment—that merchandising resembles that of a jelly-fish. A house divided against itself cannot stand. While keeping the cat-eye on a brother, their own business falls.

Get together, Boys! Cut out the suspicion, distrust and dishonesty. Establish a sane method for handling used cars—cut out the free spotlights, and stick to the list price. Be friendly—and co-operate.

Have a cleaning up day—clean up shop—business and building. Look prosperous. Go to Jackson—to Saginaw—to Grand Rapids. See what co-operation has meant to dealers there.

Then get together—stick together—work together for Better Business.

Be Optimistic

OPTIMISM is being preached through chain letters issued originally by the Minneapolis Automobile Trade Association, and which promise to reach into the billions if each person continues the chain. In the first place 2508 copies of a booster letter originated by the Chicago association was sent to all the Northwestern dealers by the members of the association.

Then 1808 letters revamped by Assistant Secretary R. B. Simning were started by the local dealers as the first links in a chain. Each recipient is to write five letters. Indorsement of the plan is being written in by bankers and others in the Northwest. Business men, bankers and members of lines affiliated with the automobile business are to get the first letters.

Plant All Available Land

Letters to dealers ask them to use their influence to get every available foot of land planted. Conference with other dealers in each place is asked, on the ground that more acres planted will make more money to buy automobiles, aside from the patriotic reasons. President H. E. Pence has returned from Florida, and the dealers dined May 3 as guests of L. H. Fawkes, who made a bad guess as to the success of the 1917 show. Plans were laid to carry the optimism campaign through the summer. Following is the letter:

BE OPTIMISTIC — BOOST

Dear Sir:

NEVER, in the history of the world, has a country experienced such abnormal prosperity as we are enjoying today.

The three leading factors of the business world—the barometers of trade—the steel industry, the railroads and the farmers, are prosperous beyond comparison or precedent. ALL TRADES, PROFESSIONS and INDUSTRIES are PARTICIPATING in this abundant PROSPERITY.

Statisticians claim that SEVEN BILLION DOLLARS were spent in this country last year! THE NORMAL EXPENDITURE IS FOUR BILLION A YEAR.

IN ADDITION to this, our Government has just appropriated ANOTHER SEVEN BILLION, most of which will be SPENT in the UNITED STATES, making the total EXPENDITURES for THIS year DOUBLE or possibly TREBLE that of normal years.

EACH and EVERY ONE of us can materially IMPROVE CONDITIONS by being OPTIMISTIC; THINKING OPTIMISM; TALKING OPTIMISTICALLY. DO MORE—WRITE IT—RADIATE IT.

BOOST FOR ARMY AND NAVY

BOOST for your ARMY and NAVY—and do it ENTHUSIASTICALLY, but DON'T discuss the pessimistic side of war with anyone—customers, employees or even friends. You cannot win an argument on war, but YOU can dispel the clouds of pessimism with the SUNSHINE OF OPTIMISM.

History shows our Government has never made a serious mistake. We are certain THEY are on the RIGHT SIDE NOW.

BE OPTIMISTIC

"RADIATE IT." PASS THE GOOD WORD ALONG. SEND A COPY of this letter over your own signature to FIVE

Letters From MOTOR WORLD Readers

Season Opening Late

Editor Motor World: In watching your "Used Car" record. I am particularly interested in your article on page 48, issue of May 23.

Motor World certainly was a dealers' paper this week. Several items were particularly apropos of the situation.

One thing Motor World has not been enabled to do and that is to make good weather and, certainly, we are suffering badly from want of this encouragement.

If you could keep in close touch with local conditions you would discover the fact that our usual business is opening up four to five weeks late and is not adding much comfort to the dealer who is well stocked up on used cars.

It may be also worthy of mention that dealers here are all appealing to the buyers on the basis that they will be open on Memorial Day, May 30. This is something which has never been so widely advertised in seasons past. We had our usual opening on Feb. 22, which is an old custom in Boston. This year we tried the same thing on April 19, a local holiday, and now the late season and weather conditions are forcing the extra effort and they are going to try and repeat the same old stuff on May 30.

My personal opinion, however, is that it is not going to be productive of the results desired. Something more than keeping our shops open on the holiday at this season of the year is needed to give the used car problem new life. What the answer is is hard to say, but then most anything is worth trying once.

As I stated in the beginning of this letter, I am much interested in your next issue on the subject.—Harry Fosdick, Inc., Harry Fosdick, president, Boston.

FRIENDS. Number each of the five copies one number higher than the number at the top of this page, using the same number on all five. This chain will end with the letter numbered one hundred, thus making it a limited chain, not objectionable to the postal authorities. DO NOT PERMIT THE CHAIN TO BREAK until then, lest our National Prosperity suffer. Please confine the letters to your FARMER friends, your BANKER, MERCHANT, and BUSINESS friends of the NORTHWEST.

BE A BOOSTER.

Very truly yours,
MINNEAPOLIS AUTOMOBILE TRADE
ASSOCIATION.

R. B. SIMNING,
Assistant Secretary.

Plan Big Denver Show

DENVER, June 2—A big motor show some time within the next year is now assured Denver by unanimous vote and active planning of the Automobile Trades Association of Colorado. Whether to hold the event in the fall, as originally planned 4 months ago, or to postpone it until next winter or spring because there has already been one show here this year has not yet been decided.

A special committee is now canvassing the dealers on this point, and is also investigating the situation fully from all angles, seeking suggestions and stirring up added enthusiasm toward supporting the affair. The chairman of the committee is Charles Hendy, Jr., manager of the Denver Ford assembling plant. Early planning and steady working will make the show a success, is the belief of the committee in charge of preparations, and officers of the trades body declare it will be of great value to the entire Rocky Mountain territory. The week's show this spring, a private enterprise, was well attended.

Franklin Breaks a Record

SYRACUSE, N. Y., June 2—During the week ending May 19, orders received by the Franklin Automobile Co. exceeded any previous week's record in the company's history. Factory production also reached a new high mark—216 cars being turned out in 5½ working days.

Lehman Has New Plant

CANNELTON, IND., June 2—The Lehman Mfg. Co. will soon be ready to move into its new plant and in about three weeks will be ready to make deliveries on Clover Leaf and commercial bodies. At present, the company is making deliveries on speed bodies for Fords, Maxwells, Overlands and Saxons. When in the new building the company will be equipped to turn out a complete line of gasoline and oil tanks and also a full line of bucket seats.

Portland for Nationalism

PORTLAND, ORE., June 2—Members of the Dealers' Motor Car Association of Oregon voted unanimously at their regular meeting to constitute a membership in the Pacific Coast Motor Car Dealers Association.

Traffic Signals From St. Louis

ST. LOUIS, June 2—The Singer Auto Traffic Signal Co. has opened a factory at 508-10 Washington Street. Work will be begun as soon as dies are delivered. F. W. A. Vesper is president of the company and also president of the Vesper-Buick Auto Co.

Automobile Workers To France

DETROIT, June 2—The United States Government is inquiring of the motor car factories for the names of their best mechanics. About 100 of these will be sent to France to take a training course in the airplane factories, following which they will return to the United States as airplane experts.

The RETAIL NEWS

EAST

Summer Street Tire Co., Boston, Mass., has been organized to handle tires in the downtown district.

George R. Bascom, Boston, Mass., accessory distributor, has opened a department of credits in charge of Oliver E. Mace, formerly credit man for a big Boston department store.

Heinze Electric Co., Lowell, Mass., has perfected the Ames deflector and is seeking distributors now.

Chandler Motors, Portland, Me., has opened a branch at Damariscotta.

Lafayette Garage, 101 Clinton St., Buffalo, is enlarging its quarters to accommodate 50 more cars. It is the largest garage in Buffalo and when alterations are completed will have room for 150 cars.

States Garage, Atlantic and Delaware Aves., Atlantic City, N. J., has been appointed service station for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Co.

John F. Zerbey, Jr., Fourth and Arch Sts., Pottsville, Pa., has been appointed to handle the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Co.

I. C. Scudder, 223 West 80th St., New York City, N. Y., has been appointed as service station for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Co.

Willys-Overland Co.'s Buffalo branch has opened an East Side agency at 1127 Broadway for the sale of Overland and Willys-Knight motor cars. John Winkler and John Wade, formerly of the uptown branch, are in charge. This new branch will supply the great Polish and German population of Buffalo's east side.

Calcasieu Motor Car Co., Lake Charles, La., has been appointed distributor for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Co.

MIDDLE WEST

Peterson & Odeen, Black River Falls, Wis., have opened a garage and repairshop under the name of Motor Inn. The partners are Maxwell and Mitchell dealers.

E. E. Barkley, Baraboo, Wis., proprietor of the West Baraboo Garage, has been appointed Chevrolet dealer in addition to representing the Oakland.

Anderson Electric Car Co., Detroit, will move its Milwaukee branch from 604 Downer Ave., Milwaukee, to 532 Jefferson St., where it will share a new two-story building with the Milwaukee branch of the Willard Storage Battery Co.

Hassler Distributing Co., of Southern Wisconsin, has opened headquarters at 188 Eighth St., Milwaukee, to distribute Hassler shock absorbers. R. T. Kirkham, Superior, Wis., is general manager.

General Tire & Rubber Co., Milwaukee, has opened a store and warehouse at 166 Fifth St., to distribute General tires, made by the General Tire Co., Akron, Ohio.

Mellen Auto Co., Mellen, Wis., now is owned by N. J. and J. L. Whelihan, who have purchased the interest of D. R. Lockhart.

W. H. McDermott, Tomahawk, Wis., has leased display and service room in the Tomahawk Garage, having been appointed Buick dealer.

E. H. Freeman, Stevens Point, Wis., Studebaker dealer for the western half of Portage County, has sold the business to John Kubisiak, who now becomes sole dealer for the county, having held the eastern half for some time.

Julius Burbach and **Oscar Annan**, West Allis, Wis., have opened a garage and repairshop in the building at Fifty-third and Greenfield Aves., which is being remodeled and enlarged to 50 x 80.

Christensen Auto Co., Stoughton, Wis., has been organized by Halvor Christensen and John Hofstad, to become local Buick dealer. Mr. Christensen has been operating a garage for some time and is a Chevrolet dealer.

Meyer-Schafer Co., Plymouth, Wis., operating a garage and repairshop, has changed its name to August Meyer & Son, C. Schafer having sold his interest to August Meyer. Theron Meyer is manager and Roy Henning superintendent.

W. A. Traver, Lake Geneva, Wis., operating a garage and repairshop, has purchased the hardware store and business of E. C. Harrison and will conduct it in connection with the motor-car business.

Logan Fischer, Fennimore, Wis., has sold his garage building and business, together with equipment, to Isaac Lomas, who has re-leased it to Jay Mitchell and Philo Dempsey. Mr. Fischer will open an exclusive battery store and service shop.

John C. Reed, Burlington, Wis., has taken possession of his new garage and repairshop on Washington St., and already is contemplating a small addition to the shop department because of the rush of business.

Otto C. Freyer, Waukesha, Wis., Reo and Hudson dealer, has purchased a half interest in the farm implement firm of Dixon & Mills, Waukesha, and the name has been changed to Dixon & Freyer.

COAST

Totem Sincere Service Accessory Store was opened at 1241 Eye St., Fresno, Cal. Manager Gray announces that a chain of stores from coast to coast will be established.

Square Deal Garage, Exeter, Cal., has been remodeled along the latest lines of garage construction.

Kingsburg Implement Co., Kingsburg, Cal., will handle the Chevrolet, and is remodeling part of its building for garage purposes.

Cross Hardware Co., Corcoran, Cal., has added a complete stock of automobile supplies.

Daasau & Payton have opened an accessory store and brazing and welding shop at 206 West Main St., Visalia, Cal.

I. M. Townsend, Selma, Cal., has added a garage to his blacksmith shop.

Kingsburg Motor Sales Co., Kingsburg, Cal., is erecting a 50 x 150 ft. concrete and tile garage on Front St. It will cost \$6,000 and will be used for Ford purposes exclusively. S. Tucker is manager.

Raymond Bisconer has become sole owner of the Service Garage, Visalia, Cal., by purchasing the interest of G. M. Nichols. The Mitchell and Saxon cars will be handled.

P. L. Vaughan has become sole owner of the Vaughan & Wright Auto Repairshop at Parlier, Cal.

E. H. McCormick, formerly with the West Side Garage, Los Angeles, has opened a vulcanizing plant in Dinuba, Cal.

George Welborn has been appointed superintendent of the service department of the Reedley Garage, Reedley, Cal.

Eyman Hardware Co., Parlier, Cal., is erecting a modern brick garage for Ford purposes exclusively.

J. E. Bigger has sold his interest in the Parlier Garage, Parlier, Cal.

Marlar & Eymann, Ford agents, are erecting a garage at Reedley, Cal.

Guy F. Wilcox, Porterville, Cal., is representing the Willard battery under the name of Porterville Battery Works.

F. R. Spotts, Lindsay, Cal., has purchased the Universal Auto Co. Garage.

Frank Lalanne, owner of Lalanne's Vulcanizing Works, Porterville, Cal., has added the Hendrie tire to his line.

Val Smith, Porterville, Cal., has opened a Chevrolet salesroom and service station at 209 Main St.

J. M. Hayden, former owner of the Highway Garage at Wasco, is now located at 307 Mill St., Porterville, Cal. He has installed a complete line of tires and accessories.

Stephens-Lamkin Auto Co., Porterville, Cal., has secured the agencies for the Dodge and Chandler cars and the Vim and G. M. C. trucks.

Fred H. Stegemier, operating under the name of the Lindsay Tire & Vulcanizing Co., has opened a vulcanizing plant and tire salesrooms at Lindsay, Cal.

A. E. Shedd, L. L. Lynch and J. T. Ponder as copartners have purchased the Economy Repair and Machine Shop, Madera, Cal. Besides complete machine equipment, a blacksmith department has been added. L. L. Lynch is manager.

Lowe Vulcanizing Works, A. Surabyan, proprietor, 1229 Van Ness Ave., Fresno, Cal., have secured the agency for the Hendrie Tire.

D. C. Longwill has purchased the interest of W. L. Wootten, becoming sole owner of the Mariposa Big Tree Garage, Madera, Cal.

C. L. Larsen, 535 Sixteenth St., Merced, Cal., has added a complete line of automobile accessories to the stock of Larsen's Cyclery and Tire Service, and will handle the Norwalk tire.

Madera Vulcanizing Works, Madera, Cal., has established a vulcanizing plant. E. M. Brickey is proprietor.

C. M. Harrison, Portland, Ore., has taken over the vulcanizing and tire business of the Western Hardware & Supply Co., and is operating under the name of the C. M. Harrison Company.

Autoparts Supply Co., Spokane, Wash., has taken the distribution of Quaker tires in the Inland Empire territory.

W. Edward Shaw, San Diego, Cal., has leased for three years the concrete garage formerly occupied by Sinclair's Ford Agency at 1141 First St.

W. S. DuImage Motor Co., Seattle, Wash., has opened a branch at Everett, Wash., on Rucker St. near Hewett and has placed A. R. Bass in charge.

Willys Overland Co. has commenced the construction of a new service building for its Fresno branch. The cost of the new building is to be \$70,000.

C. B. Green, Tacoma, Wash., has opened the Pacific Tire Co. at 2803 Sixth Ave.

M. McInnis and **O. E. Logan**, Spokane, Wash., formerly distributors of the Chalmers, have disposed of their interests to Lee Bates, who will continue to handle the line under the name of the Chalmers Auto Co., at 1228 First Ave.

W. B. Sinclair, San Diego, Cal., has taken over the office, location and plant of the San Diego Ford branch at 1040 First St., as well as the business and plant of C. A. Bradley, at Thirteenth St. and Broadway.

Sinclair closed his own garage at 1141 First St., moving the business and equipment of his own plant and that of the Bradley garage.

E. B. Anderson and F. J. Lautze, Fresno, Cal., have organized the Anderson Motor Co. and will occupy the building formerly used by the Ford branch at I and Stanislaus Streets.

Carlton P. Brooke, Pasadena, Cal., has disposed of his interest in the firm of Goodell & Brooke, 717 East Colorado St., to C. S. Mead. The business will be conducted under the name of Goodell & Mead and will handle the Oldsmobile and Monroe lines and will conduct a general garage business.

Scheibner & Hodson, Oakland, Cal., who have the agency for the Bosch products in Contra Costa and Alameda counties, have leased the new automobile building just completed at 2324-30 Broadway. The new quarters give the firm ample room to handle the trade in magnetos and take care of electric and battery work for motor car owners.

W. J. Bershon, San Francisco, Cal., has opened an automobile accessory house at 1441 Bush St. under the name of Bershon's. Bershon was formerly in accessory business at Stockton, Cal.

Reno Livery Co., Reno, Nev., which has housed horses for many years and rented horses and buggies to the prominent business men of Reno when they were young boys, becomes a garage about June 1. A G. Fletcher, owner, will become proprietor of one of the largest garages in the State of Nevada. There will be 150 x 80 ft. devoted to storage purposes. In the rear of the building an automobile paint and trimming shop is being installed. The remainder of the building will be used for stockrooms and a machineshop.

Luallin Bros., St. Maries, Idaho, will erect 50 x 90 brick garage in St. Maries.

Sam J. Kenyon has established a repair plant at 716 Pacific Ave., Tacoma, Wash., specializing in Reo and Stearns-Knight service.

George W. Miller, operating the Tacoma Avenue Auto Exchange, Tacoma, Wash., has taken into partnership G. S. Jacobson, expert mechanic. The firm will continue to specialize in repair work on the Buick Six and other makes of pleasure cars.

Metropolitan Building Co., Seattle, is having plans prepared for a fireproof garage and machine shop on University Tract, to cost \$150,000.

Perry Hewitt Garage, Missoula, Mont., has been opened in Union Hall.

Croonenbergh Garage, Missoula, Mont., will remove to the garage formerly occupied by F. M. Shoemaker, on East Pine St. The Pine St. garage will be completely renovated and overhauled, and will be known as Croonenbergh's Cash Garage.

Pacific Tire Co., Everett, Wash., has opened a shop at 2803½ Sixth Ave. Green is the owner. Vulcanizing and retreading machines have been installed.

Jones & Campbell, Mackay, Idaho, are constructing a 50 x 60 cement and brick fireproof addition to their garage.

C. V. Hansen, Mackay, Idaho, has begun work on his brick garage, to be 100 x 100, with entrance on two streets.

Moore & Reynolds, Everett, Wash., have opened a showroom and service station at 2806 Wetmore Ave. The firm handles the Velle car and truck.

Valley Garage Co., Wenatchee, Wash., has moved to new quarters in the Ford Building, where a repair department has been installed and complete accessory line handled.

J. K. Erby, The Dalles, Ore., has fitted out a new showroom and salesroom for the Velle cars.

SOUTHWEST

C. Mitchell, Dallas, Tex., is erecting a brick building at 1901 Live Oak St. for a garage and service station.

Ferris Dunlap Auto Supply Co., Dallas, Tex., has remodeled its building and now has one of the finest supply houses on automobile row.

H. A. Chamness, Dallas, Tex., has opened an automobile exchange on South Ervay St.

O. H. Maxwell, former president of the Maxwell Hay Co., has opened the Maxwell-Ford Sales Co. at 1901 Main Street, Kansas City, Mo., to distribute the Simplex trailer, the Evans automobile jack and the auto power transmitter.

Phoenix Auto Supply Co., St. Louis, is enlarging the space devoted to starter services and Bosch magneto.

Electric Service Co., Dallas, Tex., has moved to 2208 Commerce Street.

Sandusky Tractor Co., Dallas, Tex., has moved to 1313 Young Street.

Hans Johnson Co., Dallas, Tex., dealers in automobile accessories, has moved to 2410-2416 Commerce Street, where it now has 18,000 sq. ft.

D. M. Cameron Automobile Co., Dallas, Tex., has closed a contract to distribute Vim motor trucks in Texas. The territory covers the entire state.

Goodyear Tire & Rubber Co. is moving to its new home on Harwood Street, Dallas, Tex.

McArthur Bros., Phoenix, Ariz., have moved into their new building at Central Avenue and Madison Street, where they are carrying Dodge, Jeffery and Packard, also conducting a general garage and service business.

B. H. Jameson, Fulton, Mo., has purchased a lot and plans are being made for a garage.

P. E. Cavendar and Dick Millsap, Rockport, Mo., have opened a garage and salesroom.

Jeffries & Frost, Perry, Kan., have opened a garage and repairshop.

R. M. Fife, Iola, Kan., has opened a garage.

K. W. Battery Co., Chanute, Kan., is open for business, doing battery work, electric lighting and ignition exclusively.

C. H. Blackburn, Grainfield, Kan., has opened a garage.

A. Curl, Oswego, Kan., has opened a garage and machine shop.

B. R. Schroeder, Mound City, Kan., has purchased the Taylor & Smith Garage.

Mid-Continent Tire Manufacturing Co.'s building, Wichita, Kan., is nearing completion, and the machinery is ready for installation.

G. L. Gilmore, Larned, Kan., has purchased an interest in the Larned Battery & Electric Co. The name of the firm has been changed to the Electric Battery & Repair Co. Blue Rapids Motor Co., Blue Rapids, Kan., is planning an addition to its garage.

G. T. O'Maley, Kansas City, Mo., downtown Ford dealer, will occupy early this summer a new two-story building at Eighteenth and McGee Streets, with sales and service station. The salesrooms are now at 1710 Grand Avenue, the service station at 1905 McGee Street.

Sacher & Sacher, Holton, Kan., have opened a garage and repairshop.

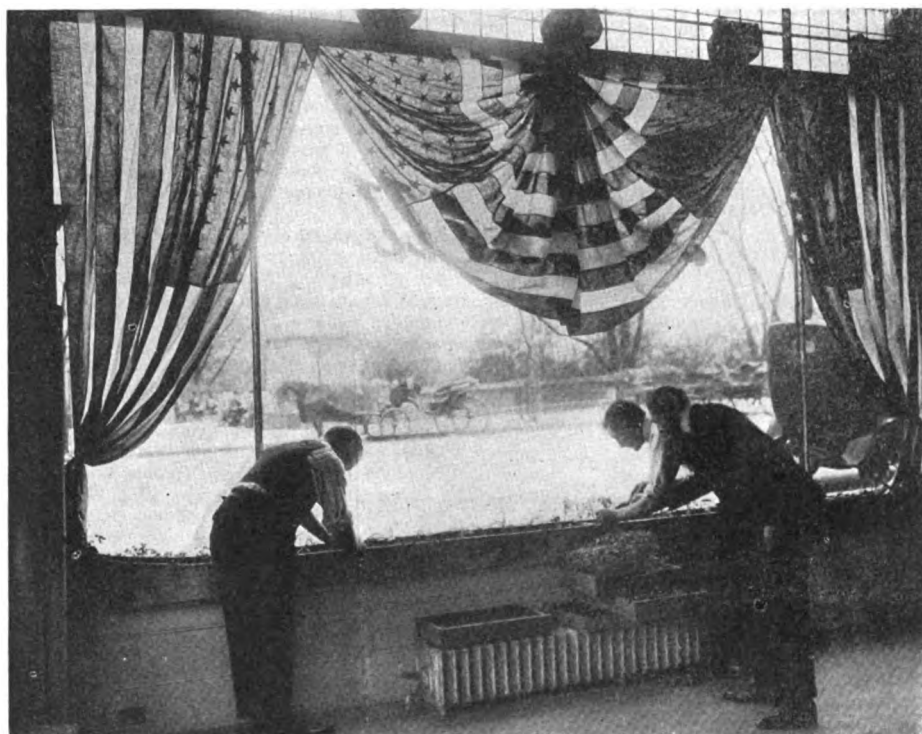
R. I. Pickering, Wakeeney, Kan., is erecting a repairshop.

Wooley Service Station, Alton, Kan., have opened a branch here and will later add a line of repairs and accessories.

C. F. Baldwin, Columbus, Kan., has opened a garage.

Dell Bennett, Chetopa, Kan., expects to have his new garage completed by June 15.

SALESMEN FARM IN NEW YORK MAXWELL SHOWROOM



The New York Maxwell branch has gone in for farming. Boxes have been installed in the show windows and lettuce, radishes, onions, parsley, celery and eggplants are thriving therein. Each salesman has a certain amount of farm, and the one who raises the best crop will win a prize. At harvest, Manager Harry J. De Bear, the originator of the idea, will give a dinner to the salesmen and award the prize.

Harman Agency, Valley Falls, Kan., expects to have its garage ready for business June 15.

Herman Wetzig, Junction City, Kan., is erecting a garage.

Tunnell & Timken, Larned, Kan., have opened a repairshop.

Kingsley Garage, Kingsley, Kan., is occupying its new building.

A. D. Roberts and Jos. Turnes, of Wichita, Kan., will open a repairshop in Liberal, Kan.

Campbell & Lachenmaler, Miltonvale, Kan., are building a garage.

Love Bros. and W. Z. Esses, Douglas, Kan., have opened a repairshop.

C. S. Brown Garage, Marshall, Mo., has been opened.

Harold Harris, Odessa, Mo., has opened a garage.

J. M. Perley, Kirksville, Mo., will erect a garage.

Studebaker Corporation, Joplin, Mo., has opened a service and sales station, with W. H. Watson, formerly of Kansas City, as manager.

Dean & McReynolds, Ryan, Okla., have opened their garage.

Stewart Products Service Station, El Paso, Tex., will open for business July 1. The firm will be headed by R. A. Kelly of Los Angeles.

W. M. Hughes, Garrison, Tex., has purchased the C. F. Parker Garage.

S. P. Gose, Krum, Tex., has opened a garage.

John Dobkins and Griff McBee, Delrio, Tex., will open a garage and repairshop.

Clifford King, Comstock, Tex., has purchased the Comstock Garage from Smith & Culpepper.

Day Bros., Rotan, Tex., are building a brick garage.

W. M. Murphy & Co., Brady, Tex., will open a garage and repairshop Aug. 1 in a building being erected.

Watkins Auto Sales Co., Llano, Tex., has started the building for the Ford service station.

Gus Noyes, Ballinger, Tex., owner of the garage building which burned recently, has made plans for rebuilding.

Way & Flak, Surprise, Neb., have awarded the contract for the construction of a one-story garage to cost \$5,000.

Morgan Auto Co., Gladbrook, Iowa, have awarded the contract for the construction of a one-story garage.

J. L. Weldon, Glenrio, N. M., is erecting a garage.

Vic Lang, Beatrice, Neb., is erecting a brick building to cost \$5,000, to be used as a Ford service station.

A. G. Hoge Co., Oklahoma City, Okla., is open for business and is specializing in automobile supplies.

Kruse Garage, Corder, Mo., was destroyed by fire recently. Ten cars parked in the garage were burned. No insurance.

J. E. Milliren, Windsor, Mo., has purchased the S. R. Shicklos Garage.

Clinton Freshman, Platte City, Mo., is erecting a garage to take the place of the Mason Garage recently burned.

Ernest Schulz, Walnut, Kan., will form a partnership with his brother, who is in the garage business.

George Nichols, Newton, Kan., proprietor of the tire department of the Woolington-Rich Motor Co., has sold a half interest in the business to J. W. Preston.

New Century Garage, Wichita, Kan., has been opened under new management.

William Farrell, Westmoreland, Kan., has opened a garage.

W. R. Smith, Effingham, Kan., has bought the Arthur Garage.

Klamm's Detroit Garage, Enterprise, Kan., has been opened.

Armsbury & Rogers, Waldo, Kan., are successors to Ira Armsbury in the North Side Garage.

Hans Johnson, Dallas, Tex., dealer in accessories, has moved to his new building, 2018 Commerce St., in the heart of automobile row.

John H. Dunn Tire Co., Dallas, Tex., a new concern, has opened at 700 South Ervay St.

Knight Tire & Rubber Co., Dallas, Tex., has moved into its new building on South Ervay St.

Flak Co. of Texas, Dallas, has remodeled its building at 2000 Commerce St. and now occupies three floors.

SOUTH

West Point Motor Car Co., West Point, Miss., has been appointed as service station for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Company.

Hobble Motor Car Co., 217 Lee St., Montgomery, Ala., has been appointed distributor for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Company.

Tire Exchange, Florence, S. C., has been appointed distributor for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Company.

Peoples Garage, Marlon, S. C., has been appointed service station for the Philadelphia Diamond Grid battery, manufactured by the Philadelphia Storage Battery Company.

NORTHWEST

O. C. Kistler, Butte, Mont., will open a garage in the Murray Building.

Motor Inn, Alexandria, Minn., will be enlarged by a 40-ft. addition.

I. G. Madden, Roundup, Mont., is building a garage, 75 x 140.

Johnson & Swanlund, Stillwater, Minn., have opened the Afton Garage.

William Hawthorne and Leslie Hawthorne, Bear Creek, Mont., have bought the J. O. Carter Garage.

F. W. Potter, Flasher, N. D., will build a garage, 24 x 36.

King & Bruno, McHenry, N. D., will build a brick garage, one story, 50 x 100.

William Donohoe, Owatonna, Minn., is building a garage, \$10,000.

O. E. Estelinson, Denton, Mont., has opened a garage.

Case Auto Co., Rochester, Minn., has bought the C. D. Brown garage.

M. R. Larson, New Salem, N. D., has opened a repairshop in the C. H. Witt garage.

Edward Reinhardt, Merricourt, N. D., has opened a garage.

P. G. Schmidt, Watertown, S. D., has opened a garage and repair station in the Public Opinion Building.

Thelen Bros., Albany, Minn., are building a brick garage, two stories, 48 x 84.

T. M. Arlien and Oscar Hagen, Arnegard, N. D., are building a garage, 60 x 300.

S. E. Crindall & Son, Bovey, Minn., are remodeling the Roan Hotel into a garage.

Flak Tire Co., Duluth, Minn., has moved to a new building at Eighth Ave. East and Superior St. The building has two separate street levels, with facilities for driving on to the second floor from the avenue to get tire tests and mountings.

C. G. Catlin & Son, Fairbury, Neb., have begun work on their new garage.

Northwestern Tire Co., Sioux Falls, S. D., opened a branch at Eighth Street and Dakota Avenue. W. C. Forde of Minneapolis is manager.

A. A. Schultz, Mobridge, S. D., will open an automobile supplies salesroom July 1.

Guerin Bros., Red Lake Falls, Minn., are building an addition to their garage, 25 x 40, one story.

Harold Webb, Brainerd, Minn., is building a garage.

John Jarorka and Peter Olson, Randall, Minn., have begun building a garage.

J. M. Kouba, Max, N. D., is building a garage.

Northwestern Motor Co., Linton, N. D., is building an addition to its garage.

C. L. Holt, Plaza, N. D., will build a show-room and garage, 50 x 100.

Clyde Brazee, Monarch, Mont., will build a garage and machine shop.

White & Person, Redwood Falls, Minn., are enlarging their garage.

O. C. Zimmerman & Co., Coffee Creek, Mont., are building a garage.

Milk River Valley Garage, Glasgow, Mont., was damaged \$20,000 by fire.

Pelton Motors Co. has been formed with headquarters for Minnesota for the Scripps-Booth at 45-49 Tenth Street S., Minneapolis, Minn.

L. C. Thompson Auto Co., formed to handle the Doble car in Northwest territory, has taken main offices in the Meyers Arcade, 70 Tenth Street S., Minneapolis, Minn.

A. F. Burger, DeWitt, Neb., has let the contract for the erection of a brick garage.

McKinney-Fuller Co., Glasgow, Mont., will construct a \$20,000 60 x 132 reinforced concrete garage at Second Street and Third Avenue. It will be steam heated, and will include a modern machine shop.

Frank Shoemaker, Missoula, Mont., has moved his garage to larger quarters at 214 East Main Street. A big machine shop and elevator for automobiles have been added.

P. J. Thue, Cannon Falls, Minn., has sold his repairshop to Harry Hine.

Victor Miller, Winsted, Minn., has opened a repairshop in the Roufs garage.

William La Mayeau and Jack Furber, Detroit, Minn., will build a \$20,000 garage.

Louis Degonda, Madelia, Minn., will erect a \$20,000 garage.

Fisher & Nauer, Saco, Mont., are building a Saco Motor Inn.

Glasgow Overland Garage, Glasgow, Mont., burned with 30 cars.

MOUNTAIN

Bell Filling Station, Denver, a new concern, is building a \$3,500 gasoline and oil station of brick and concrete at Fifteenth St. and Cleveland Place. The president and manager is R. H. Bell, formerly manager of the Denver Auto Filling Station Co.

Rasmussen & Osborn, Bayard, Neb., are building a 50 x 80 addition to their garage.

Globe Tire Sales Co., Denver, a new Colorado distributing concern for Globe tires, has opened a store at 1653 Broadway. The manager is L. G. Johnson, formerly manager of the Quick Service Tire Co.

Prestolite Co., Inc., Denver, Prestolite distributing branch for Colorado and adjacent territory, has moved its salesroom and service station from 1544 Broadway into larger quarters at 1314-1320 Acoma St.

Pearl Garage Co., Denver, has secured the Standley skid chain agency for Colorado.

Denver Tire Service, Inc., Denver retail agency and service station for United States tires, has moved from 217 Sixteenth St. into much larger quarters in a new building at 1830 Broadway. John A. Payment is manager.

P. E. Favre, Denver, has opened a repairshop at 214 Fifteenth St.

Central Garage, 1645 Court Place, Denver, has been bought by I. B. Allen, for the last five years manager of the Shirley Hotel.

An Important New Department

To Promote Better Business

Tabulated Specifications of Cars, Trucks, Tires and Tubes and Electrical Equipment For Ready Reference

IN line with its consistent policy of constantly bettering Motor World—of making it of increasingly practical value to its dealer, garageman, repairman, jobber and supply store man readers, we inaugurate on the following pages a new department.

In it there are tabulated, for instant reference, complete specifications covering the following:

- (1) Passenger cars.
- (2) Motor Trucks.
- (3) Tires and Tubes.
- (4) Electrical Equipment.

From this date forward, all these tables will appear in the first issue in every month. They will be corrected and brought up to date every month, so that Motor World readers may have instantly available the statistical information that is necessary for the intelligent handling of their businesses and for the building of better business.

These four tables will prove of tremendous value to every branch of the wholesale, jobbing, retail and maintenance branches of the motor car trade. There has long been a demand for definite data of this character.

Owing to the rapidly changing conditions in the manufacturing end of the motor car industry, tables of this kind very quickly become out of date and worthless for reference purposes.

The plan of publishing these every month with revisions to the date of issue eliminates the need for the accumulation of other data.

In publishing these tables Motor World urges that they be used continually for reference; that Motor World readers make a study of the tables and make such study their method of becoming more familiar

with the product which they sell and maintain and which their competitors sell and maintain.

Motor World Guide, which gives principal specifications of passenger cars and which has been published in every issue of Motor World since January, 1915, filled a want. The new tables go still farther by giving in condensed form many times the information contained in the Guide. At the same time, none of the features of the Guide have been eliminated.

The tables of motor truck specifications will be of particular value because of the increased interest in commercial vehicles at the present time. They give every essential detail of design and construction.

Both these sets of tables will be a valuable aid to the salesman in that they will assist him to a thorough understanding of the car he is selling, as well as giving him such data as will permit an intelligent comparison between that car and any other car.

To the repairman and garageman the tables furnish a ready reference to the type of construction used in various cars and truck parts and also give all the principal dimensions which are useful in repair work and in making replacements.

THE best motor car salesmen (or the best salesmen in any line for that matter) are those who study their product intensively. Those who, literally speaking, "know their book" are certain, other things being equal, or nearly equal, to outclass those who familiarize themselves only with a few general facts and then depend on "natural ability" as salesmen to put the thing over.

These tables will make it possible not only for salesmen, but garagemen and repairmen as well, to "know their book" thoroughly.

The Tables are on the following pages

Turn over the page

Trucks

MOTOR WORLD GUIDE

Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Capacity in Pounds	Price of Chassis	Wheelbase in Inches	FRAME		TIRES		MOTOR						ELECTRIC SYS.				GOVERNOR			SPEED		FUEL SYS.		CLUTCH TYPE		GEARSET			TRANSMISSION			BRAKES		CONTL				
				Material	Construction	Kind	SIZES IN IN.		No. of Crankshaft Bearings	Bore and Stroke	S.A.E. Hp.	Cylinders Cast	COOLING		IGNITION		Type	Make	Extra Cost	Type	Drive	Make	Motor in r.p.m.	Truck in m.p.h.	Carburetor Make	Fuel Feed	Tank Location	Type	Location	Speeds	Total Gear Reduction in High	Final Drive	Propulsion Taken By	Torque Taken By		Hand	Foot	Steer	Levers
							Front	Rear					Water Circulation	Radiator Core and Case	Type	Make																							
A & B	3T	\$4500	144	ro-c.	flex.	48x33	48x33	3	4-11x4	42	2	1	fin-sheet	d	Bosch	h	Scheb	g	g	g	Wauk	1100	17	Scheb	g	g	g	28	0	int-f	rad-rd	rad-rd	ext-w	ext-w	ext-w	ext-w	ext-w	ext-w	
A & B	5T	\$4750	144	ro-c.	flex.	48x33	48x33	3	4-11x4	42	2	1	fin-sheet	d	Bosch	h	Scheb	g	g	g	Wauk	1100	17	Scheb	g	g	g	28	0	int-f	rad-rd	rad-rd	ext-w	ext-w	ext-w	ext-w	ext-w	ext-w	
A & B	2	\$4000	150	ro-c.	flex.	34x3	34x3	3	4-11x4	29	2	1	fin-sheet	d	Bosch	h	Scheb	g	g	g	Wauk	1100	17	Scheb	g	g	g	28	0	int-f	rad-rd	rad-rd	ext-w	ext-w	ext-w	ext-w	ext-w	ext-w	
Acason	3	\$4000	150	ro-c.	flex.	34x3	34x3	3	4-11x4	29	2	1	fin-sheet	d	Bosch	h	Scheb	g	g	g	Wauk	1100	17	Scheb	g	g	g	28	0	int-f	rad-rd	rad-rd	ext-w	ext-w	ext-w	ext-w	ext-w	ext-w	
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Acme	U	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	V	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	W	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	X	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	Y	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	Z	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	AA	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	AB	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	AC	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	AD	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	AE	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7	7	worm	spgs.	spgs.	int-w	int-w	int-w	int-w	int-w	int-w	
Acme	AF	\$2000	1500	pr-st.	flex.	34x3	34x3	3	4-11x4	19	6	4	fin-sheet	s	Eismn.	h	Scheb	g	g	g	Wauk	1100	13	Scheb	g	g	g	7											

ABBREVIATIONS—General: * With optional price/c complete w/o body. **Frame Material:** ro-c, rolled channel section; pr-st, pressed steel. **Frame Construction:** s-flx, semi-flexible; flex, flexible. **Tires:** s, solid; f, inflated. **Water Circulation:** p, pump; t, thermo-siphon; a, air. **Radiator Core & Case:** fin, individually finned tubular; sq, square; tub, tubular; zig, zigzag. **Ignition Type:** d, dual; s, single. **Ignition Make:** Elsmn, Elsemann; Splifdrf, Splifdrift; Conn, Connecticut. **Spark Advance:** H, hand; f, fixed; 2, sequential; auto-m, automatic. **Electro System Type:** light, lighting; siki, starting lighting and ignition. **Make:** Splifdrf, Splifdrift; Dyneto, Dyneto; Elsmn, Elsemann; G&D, Gray & Davis; N-Est, North East; West, Westinghouse. **Governor Type:** cnt, centrifugal; suc, suction. **Drive:** f-whl, from front wheel; d-shaft, from drive-shaft. **Make:** Wauk, Waukesha; Murch, Murch; Her-Sp, Herschel-Spillman. **Carburetor Make:** Schieb, Schieber; Rayfld, Rayfield; Stmbg, Stromberg. **Fuel Feed:** v, vacuum; g, gravity; p, pressure. **Tank Location:** s, seat; d, dash; r, rear. **Clutch Type:** dy-d, dry disk; wt-d, wet disk; int-g, internal gear; sp-bv, spiral bevel; d-rdn, double reduction; id-c, individual clutch. **Location:** amid, amidships; unt-m, unit motor; unt-j, unit jackshaft; unt-x, unit axle. **Final Drive:** int-g, internal gear; sp-bv, spiral bevel; d-rdn, double reduction; id-c, individual clutch. **Location:** amid, amidships; unt-m, unit motor; unt-j, unit jackshaft; unt-x, unit axle. **Torque Taken By:** Rad-rd, radius rods; sprgs, springs; tor-a, torque arm; prop-1, torque tube. **Brakes:** ext, external contracting; int, internal expanding; r-w, rear wheel; f-w, front wheel; j-s, jackshaft; -w, all four wheels. **Control:** cent, center.

TRUCKS—Continued

Name and Model	FRAME			TIRES		MOTOR										TRANSMISSION										BRAKES		CON- TROL						
	Capacity in Pounds	Price of Chassis	Wheelbase in Inches	SIZES IN IN.		Kind	Front	Rear	No. of Crankshaft Bearings	Bore and Stroke	S.A.E. Hp.	COOLING		IGNITION		ELECTRIC SYS.		GOVERNOR		SPEED	FUEL SYS.		Clutch Type	GEARSET		Torque Taken By	Propulsion Taken By		Final Drive	Total Gear Reduction in High	Hand	Foot		
				Material	Construction							Water Circulation	Radiator Core and Case	Type	Make	Spark Advance	Type	Make	Extra Cost		Type	Drive		Make	Motor in r.p.m.								Truck in m.p.h.	Carburetor	Fuel Feed	Tank Location	Type	Location	Speeds
Hahn	7000	2800	148	flex	s.	36x5	36x5	3	4-1/2x5	32 4	4	p.	fin-cast.	Bosch	fixed	Bosch	50	suc.	motor	March	1250	20	Zenith	g.	select unit-m.	3	9.2	worm	int-w	int-w	int-w			
Hall	4000	2000	132	ro-c.	s.	36x4	36x4d	3	4-1/2x5	27 2	4	p.	fin-cast.	Bosch	fixed	Bosch	50	suc.	motor	March	1200	15	Zenith	g.	select unit-m.	3	10.5	worm	int-w	int-w	int-w			
Hall	7500	2800	144	ro-c.	s.	36x5	36x5d	3	4-1/2x5	32 4	4	p.	fin-cast.	Bosch	fixed	Bosch	50	suc.	motor	March	1200	12	Zenith	g.	select unit-m.	3	12.0	d-chn	int-w	int-w	int-w			
Hall	10000	3400	144	ro-c.	s.	36x5	40x6d	3	4-1/2x5	32 4	4	p.	fin-cast.	Bosch	fixed	Bosch	50	suc.	motor	March	1200	12	Zenith	g.	select unit-m.	3	9.4	d-chn	int-w	int-w	int-w			
Harrison	7000	2000	132	ro-c.	s.	37x5	37x4d	3	4-1/2x5	32 4	4	p.	sheet.	Bosch	hand	Bosch	hand	ent.	motor	own	1025	12	Steb.	g.	select unit-j.	3	9.6	d-chn	int-w	int-w	int-w			
Harrison	7000	2000	132	ro-c.	s.	37x5	37x5d	3	4-1/2x5	32 4	4	p.	sgt-elt.	Bosch	hand	Bosch	hand	ent.	motor	own	1000	12	Steb.	g.	select unit-j.	3	9.6	d-chn	int-w	int-w	int-w			
Harvey	4000	2500	150	ro-c.	s.	36x4	36x6	3	4-1/2x5	29 0	4	p.	sgt-elt.	Eism.	auto	West.	125	ent.	duplx	Duplex	1000	14	Holley	g.	select amid.	4	7.7	worm	int-w	int-w	int-w			
Harvey	4000	2500	150	ro-c.	s.	36x5	36x5d	3	4-1/2x5	29 0	4	p.	sgt-elt.	Eism.	auto	West.	125	ent.	duplx	Duplex	1000	13	Holley	g.	select amid.	4	8.7	worm	int-w	int-w	int-w			
Harvey	10000	4000	160	ro-c.	s.	36x5	40x6d	3	4-1/2x5	32 4	4	p.	sgt-elt.	Eism.	auto	West.	150	ent.	duplx	Duplex	1000	11	Steb.	g.	select amid.	4	11.7	worm	int-w	int-w	int-w			
Hawkeye	2500	1300	136	ro-c.	s.	34x3	34x5	3	4-1/2x5	22 5	4	p.	fin-cast.	Eism.	hand	Eism.	hand	ent.	motor	own	1700		Master	v.	select unit-m.	3	int-g.	worm	int-w	int-w	int-w			
Homer	3000	2250	145	pr-st.	s.	36x4	36x3d	3	4-1/2x5	27 2	4	p.	fin-cast.	Eism.	hand	Eism.	hand	ent.	motor	own				g.	select unit-m.	3	worm	int-w	int-w	int-w	int-w			
Homer	4000	2500	145	pr-st.	s.	36x4	36x5	3	4-1/2x5	27 2	4	p.	fin-cast.	Eism.	hand	Eism.	hand	ent.	motor	own				g.	select unit-m.	3	worm	int-w	int-w	int-w	int-w			
Homer	6000	3200	145	ro-c.	s.	36x5	40x4d	3	4-1/2x5	32 4	4	p.	fin-cast.	Eism.	hand	Eism.	hand	ent.	motor	own				g.	select unit-m.	3	9.4	worm	int-w	int-w	int-w	int-w		
Homer	10000	4200	150	ro-c.	s.	36x5	42x6d	3	4-1/2x5	32 4	4	p.	fin-cast.	Eism.	hand	Eism.	hand	ent.	motor	own				g.	select unit-m.	3	13.4	worm	int-w	int-w	int-w	int-w		
Hurlburt	3000	2350	138	pr-st.	s.	36x4	36x5	3	4-1/2x5	22 5	4	p.	cell-sheet	Eism.	fixed	West.	stock	ent.	motor	Pierce	1200	18	Flech	g.	select amid.	3	8.6	worm	int-w	int-w	int-w	int-w		
Hurlburt	3000	2350	138	pr-st.	s.	36x4	36x5d	3	4-1/2x5	22 5	4	p.	cell-sheet	Eism.	fixed	West.	stock	ent.	motor	Pierce	1200	16	Flech	g.	select amid.	3	8.6	worm	int-w	int-w	int-w	int-w		
Hurlburt	4000	3300	145	pr-st.	s.	36x5	36x5d	3	4-1/2x5	29 0	4	p.	fin-cast.	Eism.	fixed	West.	stock	ent.	motor	Pierce	1200	13	Flech	g.	select amid.	3	8.6	worm	int-w	int-w	int-w	int-w		
Hurlburt	7000	3500	146	pr-st.	s.	36x5	38x6d	3	4-1/2x5	33 8	6	p.	fin-cast.	Eism.	fixed	West.	stock	ent.	motor	Pierce	1200	12	Flech	g.	select amid.	3	10.3	worm	int-w	int-w	int-w	int-w		
Hurlburt	10000	4800	150	pr-st.	s.	36x5	38x6d	3	4-1/2x5	33 8	6	p.	fin-cast.	Eism.	fixed	West.	stock	ent.	motor	Pierce	1200	12	Flech	g.	select amid.	3	11.3	worm	int-w	int-w	int-w	int-w		
Hurlburt	14000	5500	150	pr-st.	s.	36x6	40x7	4	6-3/4x5	33 8	6	p.	fin-cast.	Eism.	fixed	West.	stock	ent.	motor	Pierce	1200	12	Flech	g.	select amid.	3	11.3	worm	int-w	int-w	int-w	int-w		
Independent	4000	1355	128	pr-st.	s.	36x3	36x4	3	4-1/2x5	19 6	4	p.	z-z-elt	Eism.	fixed	Jesco.	100	suc.	motor	March	1350		Marvel	g.	select unit-m.	3	worm	int-w	int-w	int-w	int-w			
Independent	4000	1355	128	pr-st.	s.	36x3	36x5	3	4-1/2x5	19 6	4	p.	z-z-elt	Eism.	fixed	Jesco.	100	suc.	motor	March	1350		Marvel	g.	select unit-m.	3	worm	int-w	int-w	int-w	int-w	int-w		
L.H.C.	1500	1225	115	pr-st.	s.	36x3	36x3	3	4-1/2x5	19 6	4	p.	fin-sheet.	Bosch	hand	N.E.	125	ent.	motor	own	1275	15	Holley	g.	select amid.	3	7.0	int-g.	int-w	int-w	int-w	int-w		
L.H.C.	2000	1500	125	pr-st.	s.	36x3	36x4	3	4-1/2x5	19 6	4	p.	fin-sheet.	Bosch	hand	N.E.	125	ent.	motor	own	1275	15	Holley	g.	select amid.	3	8.0	int-g.	int-w	int-w	int-w	int-w		
Jeffery	1500	965	116	pr-st.	flex	p.	35x4	35x4	3	4-3/4x5	22 5	4	p.	cell-sheet	Dixie	hand	set-2.	Byur.	stock	ent.	duplx	Duplex	1500	16	Stumb.	g.	select unit-m.	3	4.5	sp-bv.	int-w	int-w	int-w	
Jeffery	2016	3000	1465	120	pr-st.	flex	p.	35x4	35x4	3	4-3/4x5	22 5	4	p.	cell-sheet	Dixie	hand	set-2.	Byur.	stock	ent.	duplx	Duplex	1500	14	Stumb.	g.	select unit-m.	3	8.1	sp-bv.	int-w	int-w	int-w
Jeffery Quad	4016	4000	2850	124	pr-st.	flex	p.	35x5	35x5	3	4-1/2x5	29 0	4	p.	cell-sheet	Dixie	hand	set-2.	Byur.	stock	ent.	duplx	Duplex	1500	14	Stumb.	g.	select unit-m.	3	8.5	sp-bv.	int-w	int-w	int-w
Kelly-Springfield K-31	3000	2000	144	pr-st.	s.	36x3	36x6	3	4-3/4x5	22 5	4	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1200	15	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-32	3000	2000	144	pr-st.	s.	36x3	36x6	3	4-3/4x5	22 5	4	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1200	15	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-33	3000	2750	144	pr-st.	s.	36x4	36x4d	3	4-3/4x5	22 5	4	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1200	11	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-34	3000	2750	144	pr-st.	s.	36x4	36x4d	3	4-3/4x5	22 5	4	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1200	11	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-35	8000	3600	150	pr-st.	s.	38x5	40x6d	3	4-1/2x5	32 4	2	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1100	12	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-36	8000	3600	150	pr-st.	s.	38x5	40x6d	3	4-1/2x5	32 4	2	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1100	12	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-37	8000	3600	150	pr-st.	s.	38x5	40x6d	3	4-1/2x5	32 4	2	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1100	12	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-38	10000	4500	150	pr-st.	s.	38x6	40x7d	3	4-1/2x5	32 4	2	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1100	10	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-39	12000	4500	150	pr-st.	s.	38x6	40x7d	3	4-1/2x5	32 4	2	p.	cell-sheet	Eism.	auto	set-2.	R&M	175	lb.	motor	own	1100	10	Rayfid	g.	select amid.	3	d-chn	int-w	int-w	int-w	int-w		
Kelly-Springfield K-40	10000	3350	180	pr-st.	flex	s.	36x6	36x6d	3	4-1/2x5	29 0	4	p.	z-z-elt	Eism.	hand	set-2.	Remy	150	ent.	motor	Pierce	1450	20	Stumb.	v.	select unit-m.	3	6.7	worm	int-w	int-w	int-w	
Kelly-Springfield K-41	1500	950	120	ro-c.	flex	s.	36x5	36x5d	3	4-1/2x5	32 4	4	p.	z-z-elt	Eism.	hand	set-2.	Remy	150	ent.	motor	Pierce	1200	25	Stumb.	v.	select unit-m.	3	4.5	sp-bv.	int-w	int-w	int-w	
Kelly-Springfield K-42	2000	1250	132	pr-st.	rigid	p.	34x3	34x4	3	4-3/4x5	24 2	4	p.	z-z-elt	Eism.	hand	set-2.	Remy	150	ent.	motor	Pierce	1280	20	Stumb.	v.	select unit-m.	3	6.5	worm	int-w	int-w	int-w	
Kelly-Springfield K-43	4000	1																																

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Thomas	40	5000	2700	150*	pr-st.	s-flx.	s.	34x4	34x4d	34-4-3x5	27-2	4	1	p.	cell-sheet	s.	Bosch.	fixed.	lightg.	Bosch	stock	ent.	duplx.	1100	14	Bergen	g.	s.	dy-d	g.	3	8.3	worm.	sprgs.	int-w.	int-w.	l.	c.		
Tiffin.		1500	1180	110	pr-st.	flex.	p.	34x4	34x4d	2-4-3x5	19	6	4	l.	fin-sheet.	s.	Bosch.	hand.	none	none	none	ent.	motor	1000	15	Schab.	g.	s.	dy-d	g.	3	8	int-g.	sprgs.	int-w.	int-w.	l.	c.		
AW		3000	1490	112	pr-st.	flex.	p.	34x3	34x4	4-4-3x5	19	6	4	l.	fin-sheet.	s.	Bosch.	hand.	none	none	none	ent.	motor	1000	15	Schab.	g.	s.	dy-d	g.	3	8	int-g.	sprgs.	int-w.	int-w.	l.	c.		
Tiffin.		3000	1760	135	pr-st.	flex.	s.	36x3	34x4	2-4-3x5	22	5	4	l.	fin-sheet.	s.	Bosch.	hand.	none	none	none	ent.	motor	1000	13	Schab.	g.	s.	dy-d	g.	3	8	int-g.	sprgs.	int-w.	int-w.	l.	c.		
GC		5000	2300	140	pr-st.	flex.	s.	36x3	36x3d	3-4-4x5	27	2	4	l.	fin-sheet.	s.	Bosch.	hand.	none	none	none	ent.	motor	1000	12	Schab.	g.	s.	dy-d	g.	3	8	int-g.	sprgs.	int-w.	int-w.	l.	c.		
Tiffin.		5000	2000	143	pr-st.	flex.	p.	36x4	36x3d	3-4-4x5	27	2	4	l.	fin-sheet.	s.	Bosch.	hand.	none	none	none	ent.	motor	1000	12	Schab.	g.	s.	dy-d	g.	3	8	int-g.	sprgs.	int-w.	int-w.	l.	c.		
NRW		10000	4250	168	ro-1.	s-flx.	s.	36x5	40x6d	3-6-3x5	33	6	1	p.	fin-sheet.	s.	Bosch.	hand.	skt-2.	skt-2.	skt-2.	stock	ent.	motor	1000	10	Schab.	g.	s.	dy-p	g.	3	7.7	worm.	sprgs.	int-w.	int-w.	l.	c.	
Tiffin.		12000	4500	188	ro-1.	s-flx.	s.	36x5	40x6d	3-6-3x5	33	6	1	p.	fin-sheet.	s.	Bosch.	hand.	skt-2.	skt-2.	skt-2.	stock	ent.	motor	1000	10	Schab.	g.	s.	dy-p	g.	3	7.7	worm.	sprgs.	int-w.	int-w.	l.	c.	
Transport Tractor	T	10000	2500	80	ro-c.	rigid	s.	34x3	34x4d	3-4-3x5	19	6	4	l.	fin-sheet.	s.	Bosch.	fixed.	none	none	none	stock	ent.	motor	1000	12	Zenth.	g.	s.	dy-d	g.	3	11.7	worm.	sprgs.	int-w.	int-w.	l.	c.	
Union.	B	5000	1875	150	pr-st.	flex.	s.	39x4	39x6	4-4-4x6	25	6	4	l.	p.	fin-cast.	s.	Eismn.	hand.	none	none	none	stock	ent.	motor	1125	14	Schab.	g.	s.	wd	g.	3	7.7	int-g.	sprgs.	int-w.	int-w.	l.	c.
BSW		7000	2250	144*	ro-c.	rigid	s.	36x5	34x4d	3-4-4x5	32	4	2	l.	p.	fin-cast.	s.	Eismn.	hand.	skt-1.	skt-1.	opt.	stock	ent.	motor	980	12	Stmbg.	g.	s.	dy-d	g.	3	8.6	worm.	sprgs.	int-w.	int-w.	l.	c.
United	CSW	7000	2000	144*	ro-c.	rigid	s.	36x5	36x5d	3-4-4x5	36	2	2	l.	p.	cell-cast.	s.	Eismn.	hand.	skt-1.	skt-1.	opt.	stock	ent.	motor	980	12	Stmbg.	g.	s.	dy-d	g.	3	8.7	worm.	sprgs.	int-w.	int-w.	l.	c.
United	DSW	8000	3300	144*	ro-c.	rigid	s.	36x5	36x6d	3-4-4x5	36	2	2	l.	p.	cell-cast.	s.	Eismn.	hand.	skt-2*	skt-2*	opt.	stock	ent.	motor	897	10	Stmbg.	g.	s.	dy-d	g.	3	8.7	worm.	sprgs.	int-w.	int-w.	l.	c.
U.S.	ESW	10000	3900	144*	ro-c.	rigid	s.	36x6	40x6d	3-4-5-6x5	41	6	2	p.	fin-cast.	s.	Eismn.	hand.	skt-2*	skt-2*	opt.	stock	ent.	motor	897	10	Stmbg.	g.	s.	dy-d	g.	3	8.7	worm.	sprgs.	int-w.	int-w.	l.	c.	
U.S.	ESW	4000	2200	135*	ro-c.	s-flx.	s.	34x3	34x3d	3-4-4x5	27	2	4	l.	p.	sq-falt.	d	Bosch.	hand.	skt-2	skt-2	opt.	stock	ent.	motor	1170														

ABBREVIATIONS—General: * With Other Options; opt. optional; price/c. complete with body. **Frame Material:** ro-c, rolled channel section; pr-st, pressed steel. **Frame Construction:** sq-f, semi-tubular; tex, flexible. **Tires:** s, solid; p, pneumatic; p, thermo-sipon; ai, air. **Radiator Core & Case:** fm, individually finned tubular; sq-f, semi-tubular; sq-f, semi-tubular; sq-f, semi-tubular. **Water Circulation:** p, pump; t, thermo-sipon; ai, air. **Spark Advance:** h, hand; f, fixed; 2, 2-step; 3, 3-step; 4, 4-step; 5, 5-step; 6, 6-step; 7, 7-step; 8, 8-step; 9, 9-step; 10, 10-step; 11, 11-step; 12, 12-step; 13, 13-step; 14, 14-step; 15, 15-step; 16, 16-step; 17, 17-step; 18, 18-step; 19, 19-step; 20, 20-step; 21, 21-step; 22, 22-step; 23, 23-step; 24, 24-step; 25, 25-step; 26, 26-step; 27, 27-step; 28, 28-step; 29, 29-step; 30, 30-step; 31, 31-step; 32, 32-step; 33, 33-step; 34, 34-step; 35, 35-step; 36, 36-step; 37, 37-step; 38, 38-step; 39, 39-step; 40, 40-step; 41, 41-step; 42, 42-step; 43, 43-step; 44, 44-step; 45, 45-step; 46, 46-step; 47, 47-step; 48, 48-step; 49, 49-step; 50, 50-step; 51, 51-step; 52, 52-step; 53, 53-step; 54, 54-step; 55, 55-step; 56, 56-step; 57, 57-step; 58, 58-step; 59, 59-step; 60, 60-step; 61, 61-step; 62, 62-step; 63, 63-step; 64, 64-step; 65, 65-step; 66, 66-step; 67, 67-step; 68, 68-step; 69, 69-step; 70, 70-step; 71, 71-step; 72, 72-step; 73, 73-step; 74, 74-step; 75, 75-step; 76, 76-step; 77, 77-step; 78, 78-step; 79, 79-step; 80, 80-step; 81, 81-step; 82, 82-step; 83, 83-step; 84, 84-step; 85, 85-step; 86, 86-step; 87, 87-step; 88, 88-step; 89, 89-step; 90, 90-step; 91, 91-step; 92, 92-step; 93, 93-step; 94, 94-step; 95, 95-step; 96, 96-step; 97, 97-step; 98, 98-step; 99, 99-step; 100, 100-step; 101, 101-step; 102, 102-step; 103, 103-step; 104, 104-step; 105, 105-step; 106, 106-step; 107, 107-step; 108, 108-step; 109, 109-step; 110, 110-step; 111, 111-step; 112, 112-step; 113, 113-step; 114, 114-step; 115, 115-step; 116, 116-step; 117, 117-step; 118, 118-step; 119, 119-step; 120, 120-step; 121, 121-step; 122, 122-step; 123, 123-step; 124, 124-step; 125, 125-step; 126, 126-step; 127, 127-step; 128, 128-step; 129, 129-step; 130, 130-step; 131, 131-step; 132, 132-step; 133, 133-step; 134, 134-step; 135, 135-step; 136, 136-step; 137, 137-step; 138, 138-step; 139, 139-step; 140, 140-step; 141, 141-step; 142, 142-step; 143, 143-step; 144, 144-step; 145, 145-step; 146, 146-step; 147, 147-step; 148, 148-step; 149, 149-step; 150, 150-step; 151, 151-step; 152, 152-step; 153, 153-step; 154, 154-step; 155, 155-step; 156, 156-step; 157, 157-step; 158, 158-step; 159, 159-step; 160, 160-step; 161, 161-step; 162, 162-step; 163, 163-step; 164, 164-step; 165, 165-step; 166, 166-step; 167, 167-step; 168, 168-step; 169, 169-step; 170, 170-step; 171, 171-step; 172, 172-step; 173, 173-step; 174, 174-step; 175, 175-step; 176, 176-step; 177, 177-step; 178, 178-step; 179, 179-step; 180, 180-step; 181, 181-step; 182, 182-step; 183, 183-step; 184, 184-step; 185, 185-step; 186, 186-step; 187, 187-step; 188, 188-step; 189, 189-step; 190, 190-step; 191, 191-step; 192, 192-step; 193, 193-step; 194, 194-step; 195, 195-step; 196, 196-step; 197, 197-step; 198, 198-step; 199, 199-step; 200, 200-step; 201, 201-step; 202, 202-step; 203, 203-step; 204, 204-step; 205, 205-step; 206, 206-step; 207, 207-step; 208, 208-step; 209, 209-step; 210, 210-step; 211, 211-step; 212, 212-step; 213, 213-step; 214, 214-step; 215, 215-step; 216, 216-step; 217, 217-step; 218, 218-step; 219, 219-step; 220, 220-step; 221, 221-step; 222, 222-step; 223, 223-step; 224, 224-step; 225, 225-step; 226, 226-step; 227, 227-step; 228, 228-step; 229, 229-step; 230, 230-step; 231, 231-step; 232, 232-step; 233, 233-step; 234, 234-step; 235, 235-step; 236, 236-step; 237, 237-step; 238, 238-step; 239, 239-step; 240, 240-step; 241, 241-step; 242, 242-step; 243, 243-step; 244, 244-step; 245, 245-step; 246, 246-step; 247, 247-step; 248, 248-step; 249, 249-step; 250, 250-step; 251, 251-step; 252, 252-step; 253, 253-step; 254, 254-step; 255, 255-step; 256, 256-step; 257, 257-step; 258, 258-step; 259, 259-step; 260, 260-step; 261, 261-step; 262, 262-step; 263, 263-step; 264, 264-step; 265, 265-step; 266, 266-step; 267, 267-step; 268, 268-step; 269, 269-step; 270, 270-step; 271, 271-step; 272, 272-step; 273, 273-step; 274, 274-step; 275, 275-step; 276, 276-step; 277, 277-step; 278, 278-step; 279, 279-step; 280, 280-step; 281, 281-step; 282, 282-step; 283, 283-step; 284, 284-step; 285, 285-step; 286, 286-step; 287, 287-step; 288, 288-step; 289, 289-step; 290, 290-step; 291, 291-step; 292, 292-step; 293, 293-step; 294, 294-step; 295, 295-step; 296, 296-step; 297, 297-step; 298, 298-step; 299, 299-step; 300, 300-step; 301, 301-step; 302, 302-step; 303, 303-step; 304, 304-step; 305, 305-step; 306, 306-step; 307, 307-step; 308, 308-step; 309, 309-step; 310, 310-step; 311, 311-step; 312, 312-step; 313, 313-step; 314, 314-step; 315, 315-step; 316, 316-step; 317, 317-step; 318, 318-step; 319, 319-step; 320, 320-step; 321, 321-step; 322, 322-step; 323, 323-step; 324, 324-step; 325, 325-step; 326, 326-step; 327, 327-step; 328, 328-step; 329, 329-step; 330, 330-step; 331, 331-step; 332, 332-step; 333, 333-step; 334, 334-step; 335, 335-step; 336, 336-step; 337, 337-step; 338, 338-step; 339, 339-step; 340, 340-step; 341, 341-step; 342, 342-step; 343, 343-step; 344, 344-step; 345, 345-step; 346, 346-step; 347, 347-step; 348, 348-step; 349, 349-step; 350, 350-step; 351, 351-step; 352, 352-step; 353, 353-step; 354, 354-step; 355, 355-step; 356, 356-step; 357, 357-step; 358, 358-step; 359, 359-step; 360, 360-step; 361, 361-step; 362, 362-step; 363, 363-step; 364, 364-step; 365, 365-step; 366, 366-step; 367, 367-step; 368, 368-step; 369, 369-step; 370, 370-step; 371, 371-step; 372, 372-step; 373, 373-step; 374, 374-step; 375, 375-step; 376, 376-step; 3

These tables will appear in the first issue of Motor World every month. They will be revised each month and brought up-to-date

Passenger Cars

MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke Inches	S.A.E. H.P.	Piston Displacement	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION		ELECTRIC SYSTEM		IGNITION		CARBURE-TION		TRANSMISSION							RUNNING GEAR				BEARINGS					
											System	Type of Pump	Make	Voltage	Make	Plug	Make of Carburetor	Fuel Feed	Clutch Type	Location	Forward	Final Drive	Car Drives Through	Rear Axle Type	Make of Rear Axle	Torque Taken By	Wheelbase	Tires	Rims	Wheels	Rear Springs	Make of Speedometer	Number Crankshaft Bearings	Gearset	Rear Axle	Front Wheel
Abbott	6-44 \$1195	6	31x44	25.3	224.0	4.75	Cont.	L	H	D	Sp-Pr	Remy-1	D	6 Remy	Stumg.	V	D	Unit M.	3	Sp.B.	Springs.	F	Salary.	Springs.	122	32x4	SS	Wd.	S.E.	Stewart.	3	B.	R.	R.	
Abbott	6-60 1595	6	31x51	29.4	303.1	4.75	Cont.	L	H	T	Cir-Sp	Remy-2	P	6 Remy	Stumg.	V	C	Unit M.	3	Bevel	Springs.	F	Adams	Tor.T.	112	32x3	SS	Wd.	S.E.	Stewart.	2	BP.	BR	B.	
Allen	Classic A	8	31x51	22.5	212.0	4.00-1	Amco	L	H	T	Cir-Sp	G&D-2	P	6 G&D	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Special	Springs.	110	30x3	SS	Wd.	S.E.	Warner	3	R.	R.	B.	
American	1285	6	31x51	21.6	212.0	4.42-1	Amro	L	H	T	Sp-Pr	Remy-2	P	6 West	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Mott.	Springs.	120	33x4	SS	Wd.	S.E.	Stewart.	3	R.	B.	B.	
Ans-Stirling	875	4	31x44	15.6	138.1	4.25-1	LeRo	L	H	P	Sp-Pr	Remy-2	P	6 Remy	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Own	Springs.	130	34x4	SS	Wd.	S.E.	Stewart.	4	R.	R.	R.	
Anderson	6-40 1295	6	31x44	25.3	224.0	4.42-1	Cont.	L	H	P	Sp-Pr	Remy-2	P	6 Remy	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Own	Springs.	130	34x4	SS	Wd.	S.E.	Stewart.	3	R.	R.	R.	
Apperson	6-17 1850	6	31x44	25.3	224.0	4.42-1	Cont.	L	H	P	Sp-Pr	Remy-2	P	6 Remy	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Own	Springs.	130	34x4	SS	Wd.	S.E.	Stewart.	3	R.	R.	R.	
Apperson	6-17 2000	6	31x44	25.3	224.0	4.42-1	Cont.	L	H	P	Sp-Pr	Remy-2	P	6 Remy	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Own	Springs.	130	34x4	SS	Wd.	S.E.	Stewart.	3	R.	R.	R.	
Auburn	6-39 1145	6	31x51	29.4	303.1	4.42-1	Tector	L	H	P	Cir-Sp	Delco-1	P	6 Delco	Stumg.	V	P	Unit M.	3	Sp.B.	Springs.	F	Chumba	Tor.T.	120	34x4	SS	Wd.	S.E.	Stewart.	3	BP.	R.	B.	
Auburn	6-44 1535	6	31x51	29.4	303.1	4.42-1	Cont.	L	H	P	Cir-Sp	Delco-1	P	6 Delco	Stumg.	V	P	Unit M.	3	Sp.B.	Springs.	F	Chumba	Tor.T.	131	35x4	SS	Wd.	S.E.	Stewart.	3	BP.	R.	B.	
Austin	6-44 3750	12	24x5	39.7	389.5	3.75-1	Widly	L	H	P	Cir-Sp	Delco-2	P	6 Delco	Stumg.	V	D	Unit M.	6	Bevel	Springs.	F	Own	Springs.	143	34x4	QD	Wd.	S.E.	Warner	4	B.	BR	R.	
Bell	17	4	31x51	19.6	192.4	4.25-1	Lyngm.	L	H	T	Cir-Sp	G&D-2	P	6 Kent	Stumg.	V	D	Unit M.	3	Bevel	Springs.	F	Adams	Springs.	112	31x4	QD	Wd.	S.E.	Stewart.	2	R.	R.	B.	
Ben Hur	1875	6	31x51	29.4	303.1	4.45	Buda	L	H	T	Sp-Pr	West-2	P	6 Bosch	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Timken.	Springs.	126	35x4	QD	Wd.	S.E.	Warner	3	R.	BR	B.	
Biddle	D	4	31x51	29.4	303.1	4.45	Buda	L	H	T	Sp-Pr	West-2	P	6 Dixie	Stumg.	V	P	Unit M.	3	Bevel	Springs.	F	Special	Springs.	118	32x4	QD	Wd.	S.E.	Warner	3	BP.	BR	B.	
Bour-Davis	1250	6	31x44	25.3	224.0	4.42-1	Cont.	L	H	T	Sp-Pr	G&D-2	P	6 Remy	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	Own	Springs.	123	34x4	SS	Wd.	S.E.	Warner	3	B.	R.	R.	
Brewster	6500	4	31x51	25.3	276.5	4.50-1	Own	L	S	P	Sp-Pr	U.S.L.	P	12 Bosch	Stumg.	V	C	Unit X.	3	Sp.B.	Springs.	F	Own	Springs.	123	34x4	SS	Wd.	S.E.	Warner	3	B.	R.	R.	
Brucio	B-4-24 725	4	31x51	16.3	163.5	4.25-1	Own	L	H	T	Cir-Sp	Split-1	P	6 Conn.	Stumg.	V	C	Unit X.	3	Bevel	Springs.	F	Own	Tor.R.	114	32x3	QD	Wd.	S.E.	Stewart.	2	BP.	BR	B.	
Brucio	8-38 845	8	31x51	18.9	190.4	4.25-1	Own	L	H	T	Cir-Sp	Apico	P	6 Remy	Stumg.	V	C	Unit X.	3	Bevel	Springs.	F	Own	Tor.R.	114	32x3	QD	Wd.	S.E.	Stewart.	2	BP.	BR	B.	
Brucio	8-38 1045	8	31x51	18.9	190.4	4.25-1	Own	L	H	T	Cir-Sp	Apico	P	6 Remy	Stumg.	V	C	Unit X.	3	Bevel	Springs.	F	Own	Tor.R.	114	32x3	QD	Wd.	S.E.	Stewart.	2	BP.	BR	B.	
Buck	D-34 675	4	31x44	18.2	170.0	4.08-1	Own	L	H	P	Cir-Sp	Delco-1	P	6 Delco	Stumg.	V	C	Unit M.	3	Bevel	Springs.	F	West.M.	Tor.T.	106	31x4	SS	Wd.	S.E.	Stewart.	3	BR	BR	B.	
Buck	D-44-47 1070	6	31x44	25.3	224.0	4.08-1	Own	L	H	P	Cir-Sp	Delco	P	6 Delco	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	West.M.	Tor.T.	115	34x4	SS	Wd.	S.E.	Stewart.	4	B.	BR	B.	
Buck	E-49 1385	6	31x44	27.3	241.6	4.08-1	Own	L	H	P	Cir-Sp	Delco	P	6 Delco	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	West.M.	Tor.T.	124	34x4	SS	Wd.	S.E.	Stewart.	4	B.	BR	B.	
Cadillac	55	8	31x51	31.2	314.4	4.37-1	Own	L	C	P	Pr	Delco-1	G	6 Delco	Stumg.	V	D	Unit M.	3	Sp.B.	Springs.	F	Timken.	Tor.R.	125	36x4	SS	Wd.	Plat.	Warner	3	B.	R.	R.	
Cameron	1250	6	31x51	21.6	212.0	4.00-1	Amco	L	H	P	Sp-Pr	G&D-2	P	6 G&D	Stumg.	V	P	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	122	32x4	SS	Wd.	S.E.	Stewart.	3	RP	R.	R.	
Case	T-17 1190	4	31x51	21.6	212.0	4.40-1	Own	L	H	T	Sp-Pr	A-Lite-2	P	6 Bosch	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	122	32x4	SS	Wd.	S.E.	Stewart.	3	RP	R.	R.	
Chalmers	6-30 1250	6	31x44	25.3	224.0	4.75-1	Own	L	H	T	Sp-Pr	West-2	P	6 Bosch	Stumg.	V	P	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	123	32x4	SS	Wd.	S.E.	Stewart.	3	R.	R.	R.	
Chandler	17 1395	6	31x44	29.4	268.4	3.40-1	Own	L	C	P	Sp-Pr	G&D-2	P	6 Bosch	Stumg.	V	P	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	123	34x4	SS	Wd.	S.E.	Stewart.	3	R.	R.	R.	
Cherrollet	490	550	4	31x44	21.7	170.9	3.67-1	Own	L	H	T	Sp-Pr	A-Lite-2	P	6 Bosch	Stumg.	V	C	Unit M.	3	Bevel	Springs.	F	Own	Springs.	102	30x3	SS	Wd.	S.E.	Stewart.	3	BP	R.	B.
Cherrollet	F.A-5, FA-2 875	4	31x44	21.7	170.9	4.25-1	Own	L	H	T	Sp-Pr	A-Lite-2	P	6 Bosch	Stumg.	V	C	Unit M.	3	Bevel	Springs.	F	Own	Springs.	108	32x3	SS	Wd.	S.E.	Stewart.	3	BP	R.	B.	
Cherrollet	1385	8	31x44	36.5	286.3	4.45-1	North.	L	S	P	Cir-Sp	Delco-2	P	6 Delco	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	120	34x4	SS	Wd.	S.E.	Stewart.	3	BP	R.	B.	
Cole	8-40 1795	8	31x44	39.2	346.3	4.45-1	North.	L	S	P	Cir-Sp	Delco-2	P	6 Delco	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	120	34x4	SS	Wd.	S.E.	Stewart.	3	BP	R.	B.	
Columbia	1250	6	31x44	25.3	224.0	4.75	Cont.	L	H	P	Sp-Pr	West-2	P	6 Bosch	Stumg.	V	P	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	127	35x4	SS	Wd.	S.E.	Stewart.	4	R.	R.	R.	
Crawford	1750	6	31x51	29.4	303.1	4.50	Cont.	L	H	P	Cir-Sp	West-2	P	6 Bosch	Stumg.	V	P	Unit M.	3	Sp.B.	Springs.	F	Own	Tor.T.	127	35x4	SS	Wd.	S.E.	Stewart.	4	R.	R.	R.	
Crow-Elkhart	CE-33-35 845	4	31x51	19.6	192.4	4.25-1	Lyngm.	L	H	P	Cir-Sp	Dyneto-2	P	6 Conn.	Stumg.	V	G	Unit X.	3	Sp.B.	Springs.	F	Peru	Tor.T.	114	32x3	SS	Wd.	S.E.	Stewart.	2	R.	R.	R.	
Cunningham	3750	8	31x51	45	441.7	4.08-1	Own	L	H	P	Cir-Sp	Dyneto-2	P	6 Conn.	Stumg.	V	D	Unit X.	3	Sp.B.	Springs.	F	Peru	Tor.T.	130	35x5	SS	Wd.	S.E.	Stewart.	2	R.	R.	R.	
Daniels	A	8	31x51	33.8	331.8	4.42-1	Her-Sp	L	H	P	Pr	West-2	P	6 Bosch	Stumg.	V	D	Unit M.	3	Sp.B.	Springs.	F	Timken.	Tor.T.	127	34x4	QD	Wd.	S.E.	Warner	3	BR	R.	R.	
Davis	H-1 1295	6	31x44	25.3	224.0	4.42-1	Cont.	L	H	P	Sp-Pr	Delco-2	P	6 Bosch	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	Timken.	Tor.T.	127	34x4	QD	Wd.	S.E.	Stewart.	3	B.	R.	R.	
Davis	1595	6	31x51	29.4	303.1	4.42-1	Cont.	L	H	P	Sp-Pr	Delco-2	P	6 Bosch	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	Timken.	Tor.T.	127	34x4	QD	Wd.	S.E.	Stewart.	3	B.	R.	R.	
Detrollet	Six-45 1250	6	31x44	25.3	224.0	4.75-1	Cont.	L	H	P	Sp-Pr	Delco-2	P	6 Bosch	Stumg.	V	C	Unit M.	3	Sp.B.	Springs.	F	Timken.	Tor.T.	127	34x4	QD	Wd.	S.E.	Stewart.	3	BP	R.	R.	
Dispatch	G	1210	4	31x51	22.5	220.9	4.00-1	Wis.	L	H	T	Sp-Pr	U.S.L-1	P	12 Bosch	Stumg.	V	P	Unit M.	4	Del.C	Rad.Rd	Rad.Rd	Rad.Rd	119	36x3	SS	Wd.	S.E.	Corbin	3	BP	R.	R.	
Dixie Flyer	885	4	31x51	16.9	165.9	4.75-1	Lyngm	L	H	T	Cir-Sp	A-Lite-1	P	6 Bosch	Stumg.	V																			

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PASSENGER CARS—Continued

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke Inches	S.A.E. H.P.	Piston Displacement	Gear Ratio on Direct	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION		ELECTRIC SYSTEM		IGNITION	CARBURE-TION		TRANSMISSION					RUNNING GEAR				BEARINGS							
											System	Type of Pump	Make	Voltage		Make	Plug Size	Carburetor	Fuel Feed	Clutch Type	GEARSET	Final Drive	Car Drives Through	Rear Axle Type	Make of Rear Axle	Torque Taken By	Wheelbase	Tires	Rims	Wheels	Rear Springs	Make of Speedometer	Crankshaft Bearings	Gearset	Rear Axle	Front Wheel
Oldsmobile 37	1095	6	2 1/4 x 4	18.9	246.7	4.92-1	Own	L	H	P	Pr	G	Delco-2	6	Delco	Johnson	V	C	Unit M.	3	Sp. B.	Springs	F	West. M.	Springs	112	32x4	SS	112	Stewart	2	BR	BR	R.
Oldsmobile 45	1295	8	2 1/4 x 4	26.4	278.9	3.75-1	Own	L	H	T	Pr	G	Delco-2	6	Delco	Tiltlen	V	C	Unit X	3	Bevel	Tor. T.	F	Own	Tor. T.	120	33x4	SS	120	Stewart	2	BR	BR	R.
Overland 90	695	4	3 1/2 x 5	18.2	178.9	4.00-1	Own	L	H	P	Pr	G	A-Lite-1	6	Conn.	Tiltlen	V	C	Unit X	3	Bevel	Tor. T.	F	Own	Tor. T.	104	31x4	C	104	Stewart	5	BR	BR	R.
Overland 85-B-1	895	4	4 1/4 x 4	27.2	240.5	4.00-1	Own	L	H	P	Pr	G	A-Lite-2	6	Conn.	Tiltlen	V	C	Unit X	3	Bevel	Tor. T.	F	Own	Tor. T.	112	32x4	SS	112	Stewart	3	BR	BR	R.
Overland 85-B-6	1025	6	3 1/2 x 4	25.3	224.0	4.60-1	Cont.	L	H	P	Pr	G	A-Lite-2	6	Conn.	Tiltlen	V	C	Unit X	3	Bevel	Tor. T.	F	Own	Tor. T.	116	32x4	SS	116	Stewart	3	BR	BR	R.
Owen Magnetic M-25	3300	6	3 1/2 x 5	29.4	303.1	4.50-1	Cont.	L	H	P	Pr	G	Own	24	Bosch	Zenith	V	C	Unit X	6	Sp. B.	Springs	F	Timken	Springs	125	34x4	SS	125	Warner	3	BR	BR	R.
Owen Magnetic O-36	3950	6	3 1/2 x 5	33.7	364.5	3.50-1	Buda	L	H	P	Pr	G	Own	24	Bosch	Zenith	V	C	Unit X	6	Sp. B.	Springs	F	Amer.	Springs	136	35x5	SS	136	Warner	4	BR	BR	R.
Packard 2-25	3050	12	3 x 5	42.1	436-1	4.35-1	Own	L	C	P	Pr	G	Bijur-2	6	Delco	Own	P	D	Unit M.	3	Sp. B.	Springs	S-F	Own	Tor. A.	126	35x5	SS	126	Waltham	3	BR	B.	R.
Paige 6-39	1175	6	3 1/2 x 5	23.4	230.1	4.41-1	Rutnab	L	H	P	Pr	P	G&D-2	6	Remy	Rayfild	G	D	Unit M.	3	Sp. B.	Springs	S-F	Salsbury	Tor. T.	117	32x4	SS	117	Stewart	3	BR	BR	B.
Paige 6-46	1375	6	3 1/2 x 5	29.4	303.1	4.35-1	Cont.	L	H	P	Pr	P	G&D-2	6	Remy	Rayfild	G	D	Unit M.	3	Sp. B.	Springs	S-F	Salsbury	Tor. T.	127	35x4	SS	127	Stewart	3	BR	BR	B.
Paige 6-51	1495	4	3 1/2 x 4	15.6	138.1	4.00-1	LeRoi	L	H	T	Pr	G	Remy-2	6	Conn.	Schblr.	G	D	Unit X	3	Bevel	Tor. T.	F	Durston	Springs	96	30x3	C	96	None	2	B.	B.	R.
Partin-Palmer 32	695	4	3 1/2 x 4	15.6	138.1	4.00-1	LeRoi	L	H	T	Pr	G	A-Ch-1	6	Conn.	Schblr.	G	D	Unit X	3	Bevel	Tor. T.	F	Durston	Springs	96	30x3	C	96	None	2	B.	B.	R.
Partin-Palmer Ultra 40	885	6	3 1/2 x 4	25.4	224.0	4.50-1	Cont.	L	H	P	Pr	P	Delco	6	Delco	Stmblg	V	C	Unit M.	3	Sp. B.	Springs	F	Hess	Springs	117	32x4	C	117	Stewart	3	B.	R.	R.
Parterson 3-ABC	1165	12	2 1/2 x 5	39.7	389.5	4.33-1	Widly	L	H	P	Pr	G	Delco-1	6	Delco	Stmblg	V	D	Unit M.	3	Sp. B.	Springs	S-F	Timken	Springs	125	35x4	SS	125	Stewart	3	B.	R.	R.
Peerless 2500	950	8	3 1/2 x 5	33.8	331.8	4.45-1	Own	L	H	P	Pr	G	A-Lite-2	6	A.Kent.	Ball	V	D	Unit M.	3	Sp. B.	Springs	S-F	Timken	Springs	125	35x4	SS	125	Stewart	3	B.	R.	R.
Phaenna M 4800	4500	6	4 1/2 x 5	38.4	414.7	3.78-1	Own	L	C	P	Pr	G	West-2	6	Bosch	H&N	V	D	Amid	4	Sp. B.	Rad. Rd	S-F	Amert	Rad. Rd	134	36x4	QDC	134	Warner	7	BP	BR	R.
Pierce-Arrow 38-C-1	5400	6	4 1/2 x 5	38.4	414.7	3.78-1	Own	L	C	P	Pr	G	West-2	6	Bosch	Own	V	D	Amid	4	Sp. B.	Rad. Rd	S-F	Amert	Rad. Rd	134	36x4	QDC	134	Warner	7	BP	BR	R.
Pierce-Arrow 48-B-4	6400	6	4 1/2 x 5	40.8	524.8	3.88-1	Own	T	H	P	Pr	G	West-2	6	Bosch	Own	V	D	Amid	4	Sp. B.	Springs	S-F	Amert	Rad. Rd	134	36x4	QDC	134	Warner	7	BP	BR	R.
Pierce-Arrow 66-A-4	6400	6	5 x 7	60	824.7	2.88-1	Tector	L	H	P	Pr	G	West-2	6	Bosch	Own	V	D	Amid	4	Sp. B.	Springs	S-F	Amert	Rad. Rd	134	36x4	QDC	134	Warner	7	BP	BR	R.
Pilot 6-45	1200	6	3 1/2 x 5	23.4	230.1	4.45-1	Own	L	H	P	Pr	G	Delco-2	6	Delco	Johnson	V	P	Unit M.	3	Sp. B.	Springs	S-F	Timken	Springs	125	35x4	SS	125	Stewart	3	BP	R.	R.
Premier 6-45	1985	6	3 1/2 x 5	27.3	295.3	4.75-1	G.B.&S.	L	C	P	Pr	G	Disco-2	6	A.Kent.	Schblr.	V	D	Unit M.	3	Sp. B.	Springs	S-F	Amert	Rad. Rd	134	36x4	SS	134	Warner	3	BP	R.	R.
Princess 4-36-F	825	4	3 1/2 x 4	22.5	187.7	4.25-1	G.B.&S.	L	C	P	Pr	G	Disco-2	6	A.Kent.	Schblr.	V	D	Unit M.	3	Sp. B.	Springs	S-F	Amert	Rad. Rd	134	36x4	SS	134	Warner	3	BP	R.	R.
Pullman 424-32	860	4	3 1/2 x 4	22.5	187.7	4.50-1	G.B.&S.	L	C	P	Pr	G	Disco-2	6	A.Kent.	Schblr.	V	D	Unit M.	3	Sp. B.	Springs	S-F	Amert	Rad. Rd	134	36x4	SS	134	Warner	3	BP	R.	R.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6	Heinze	Cartier	V	C	Unit X	3	Bevel	Tor. T.	S-F	Timken	Springs	96	30x3	QDC	96	Stewart	3	B.	B.	B.
Regal 4-32	745	4	3 1/2 x 4	19.6	182.8	4.25-1	Own	L	H	T	Pr	P	Heinze E	6																				

Tires and Tubes

Tires and Tubes

Name	3x28	3x30	3x32	31x30	31x31	31x32	31x34	4x33	4x34	4x35	4x36	41x32	41x33	41x34	41x35	41x36	41x37	5x35	5x36	5x37	51x37	51x35	
ACME	14.50	15.60	116.50	20.30	221.70	22.20	23.50	125.00	31.20	32.30	33.40	34.50	41.20	41.30	41.40	41.50	46.50	47.80	52.50	54.10	55.80	169.80	171.70
	Plain	Non-Std	Non-Std	20.30	221.70	22.20	23.50	125.00	31.20	32.30	33.40	34.50	41.20	41.30	41.40	41.50	46.50	47.80	52.50	54.10	55.80	169.80	171.70
	Non-Std	Non-Std	116.50	222.00	222.80	23.50	27.10	128.70	36.00	37.00	38.10	39.20	44.50	44.60	44.70	44.80	48.50	50.30	55.10	56.90	58.50	180.30	182.50
	Non-Std	Non-Std	116.50	222.00	222.80	23.50	27.10	128.70	36.00	37.00	38.10	39.20	44.50	44.60	44.70	44.80	48.50	50.30	55.10	56.90	58.50	180.30	182.50
ADVANCE	118.40	119.60	119.10	24.00	224.80	28.00	29.10	128.70	38.00	39.00	40.10	41.20	46.50	46.60	46.70	46.80	50.50	52.30	57.10	58.90	60.50	180.30	182.50
	Hampshire	Non-Std	Non-Std	24.00	224.80	28.00	29.10	128.70	38.00	39.00	40.10	41.20	46.50	46.60	46.70	46.80	50.50	52.30	57.10	58.90	60.50	180.30	182.50
	G. R. B. Plain	Non-Std	Non-Std	115.85	116.75	18.55	19.65	122.75	25.95	26.95	28.05	29.15	33.60	33.70	33.80	33.90	37.35	39.15	43.90	45.70	47.50	167.75	169.50
	Non-Std	Non-Std	112.80	115.85	116.75	18.55	19.65	122.75	25.95	26.95	28.05	29.15	33.60	33.70	33.80	33.90	37.35	39.15	43.90	45.70	47.50	167.75	169.50
AJAX	111.60	112.20	112.80	115.85	116.75	18.55	19.65	122.75	25.95	26.95	28.05	29.15	33.60	33.70	33.80	33.90	37.35	39.15	43.90	45.70	47.50	167.75	169.50
	Non-Std	Non-Std	112.80	115.85	116.75	18.55	19.65	122.75	25.95	26.95	28.05	29.15	33.60	33.70	33.80	33.90	37.35	39.15	43.90	45.70	47.50	167.75	169.50
	Non-Std	Non-Std	112.80	115.85	116.75	18.55	19.65	122.75	25.95	26.95	28.05	29.15	33.60	33.70	33.80	33.90	37.35	39.15	43.90	45.70	47.50	167.75	169.50
	Non-Std	Non-Std	112.80	115.85	116.75	18.55	19.65	122.75	25.95	26.95	28.05	29.15	33.60	33.70	33.80	33.90	37.35	39.15	43.90	45.70	47.50	167.75	169.50
AMAZON	112.40	113.15	117.05	116.90	117.70	20.50	21.60	124.50	28.00	29.00	30.10	31.20	35.65	35.75	35.85	35.95	39.40	41.20	46.00	47.80	49.60	167.75	169.50
	Non-Std	Non-Std	117.05	116.90	117.70	20.50	21.60	124.50	28.00	29.00	30.10	31.20	35.65	35.75	35.85	35.95	39.40	41.20	46.00	47.80	49.60	167.75	169.50
	Non-Std	Non-Std	117.05	116.90	117.70	20.50	21.60	124.50	28.00	29.00	30.10	31.20	35.65	35.75	35.85	35.95	39.40	41.20	46.00	47.80	49.60	167.75	169.50
	Non-Std	Non-Std	117.05	116.90	117.70	20.50	21.60	124.50	28.00	29.00	30.10	31.20	35.65	35.75	35.85	35.95	39.40	41.20	46.00	47.80	49.60	167.75	169.50
AMERICAN	13.50	13.50	13.50	17.50	18.50	20.45	22.75	23.40	30.00	31.25	32.75	33.50	42.00	42.40	43.50	44.40	46.25	53.75	55.75	57.00	9.25	10.85	
	Plain	Non-Std	Non-Std	17.50	18.50	20.45	22.75	23.40	30.00	31.25	32.75	33.50	42.00	42.40	43.50	44.40	46.25	53.75	55.75	57.00	9.25	10.85	
	Non-Std	Non-Std	13.50	14.25	15.30	16.35	17.40	18.45	19.50	20.55	21.60	22.65	23.70	24.75	25.80	26.85	27.90	28.95	30.00	31.05	32.10	33.15	
	Non-Std	Non-Std	13.50	14.25	15.30	16.35	17.40	18.45	19.50	20.55	21.60	22.65	23.70	24.75	25.80	26.85	27.90	28.95	30.00	31.05	32.10	33.15	
ANDERSON	12.15	12.15	12.15	15.50	15.70	16.45	18.95	20.85	25.25	25.95	26.00	28.65	33.90	34.15	35.05	35.10	38.50	44.20	46.35	47.95	50.50	52.00	
	Plain	Non-Std	Non-Std	15.50	15.70	16.45	18.95	20.85	25.25	25.95	26.00	28.65	33.90	34.15	35.05	35.10	38.50	44.20	46.35	47.95	50.50	52.00	
	Non-Std	Non-Std	12.15	16.35	16.55	17.30	19.05	25.20	29.75	31.20	32.00	32.80	33.10	34.00	34.20	35.10	36.00	36.90	37.80	38.70	39.60	40.50	
	Non-Std	Non-Std	12.15	16.35	16.55	17.30	19.05	25.20	29.75	31.20	32.00	32.80	33.10	34.00	34.20	35.10	36.00	36.90	37.80	38.70	39.60	40.50	
ARMSTRONG	116.85	117.55	118.70	20.80	222.70	23.00	24.60	126.10	28.00	29.00	30.40	31.90	40.80	41.20	42.60	43.00	46.40	51.75	54.35	56.95	93.25	94.85	
	Plain	Non-Std	Non-Std	20.80	222.70	23.00	24.60	126.10	28.00	29.00	30.40	31.90	40.80	41.20	42.60	43.00	46.40	51.75	54.35	56.95	93.25	94.85	
	Non-Std	Non-Std	116.85	117.55	118.70	20.80	24.60	126.10	28.00	29.00	30.40	31.90	40.80	41.20	42.60	43.00	46.40	51.75	54.35	56.95	93.25	94.85	
	Non-Std	Non-Std	116.85	117.55	118.70	20.80	24.60	126.10	28.00	29.00	30.40	31.90	40.80	41.20	42.60	43.00	46.40	51.75	54.35	56.95	93.25	94.85	
BALTIMORE	17.30	17.70	18.10	21.50	23.80	25.30	27.50	32.80	31.50	32.60	33.85	34.85	39.20	40.50	41.75	43.00	45.25	51.10	53.55	55.95	80.20	81.60	
	Plain	Non-Std	Non-Std	21.50	23.80	25.30	27.50	32.80	31.50	32.60	33.85	34.85	39.20	40.50	41.75	43.00	45.25	51.10	53.55	55.95	80.20	81.60	
	Non-Std	Non-Std	17.30	18.10	18.50	19.30	20.10	20.90	21.70	22.50	23.30	24.10	24.90	25.70	26.50	27.30	28.10	28.90	29.70	30.50	31.30	32.10	
	Non-Std	Non-Std	17.30	18.10	18.50	19.30	20.10	20.90	21.70	22.50	23.30	24.10	24.90	25.70	26.50	27.30	28.10	28.90	29.70	30.50	31.30	32.10	
BATAVIA	13.05	13.05	13.05	16.60	17.55	19.45	22.75	25.45	27.15	28.85	30.55	32.25	33.95	35.65	37.35	39.05	40.75	42.45	44.15	45.85	47.55	49.25	
	Plain	Non-Std	Non-Std	16.60	17.55	19.45	22.75	25.45	27.15	28.85	30.55	32.25	33.95	35.65	37.35	39.05	40.75	42.45	44.15	45.85	47.55	49.25	
	Non-Std	Non-Std	13.05	16.60	16.80	17.60	18.40	19.20	20.00	20.80	21.60	22.40	23.20	24.00	24.80	25.60	26.40	27.20	28.00	28.80	29.60	30.40	
	Non-Std	Non-Std	13.05	16.60	16.80	17.60	18.40	19.20	20.00	20.80	21.60	22.40	23.20	24.00	24.80	25.60	26.40	27.20	28.00	28.80	29.60	30.40	
BEACON	12.30	12.30	12.30	16.60	16.60	19.45	22.75	25.45	27.15	28.85	30.55	32.25	33.95	35.65	37.35	39.05	40.75	42.45	44.15	45.85	47.55	49.25	
	Plain	Non-Std	Non-Std	16.60	16.60	19.45	22.75	25.45	27.15	28.85	30.55	32.25	33.95	35.65	37.35	39.05	40.75	42.45	44.15	45.85	47.55	49.25	
	Non-Std	Non-Std	12.30	16.60	16.80	17.60	18.40	19.20	20.00	20.80	21.60	22.40	23.20	24.00	24.80	25.60	26.40	27.20	28.00	28.80	29.60	30.40	
	Non-Std	Non-Std	12.30	16.60	16.80	17.60	18.40	19.20	20.00	20.80	21.60	22.40	23.20	24.00	24.80	25.60	26.40	27.20	28.00	28.80	29.60	30.40	
BERGOUNGAN	13.40	13.40	13.40	19.45	20.60	22.00	25.05	31.75	35.40	36.75	38.10	39.45	40.80	42.15	43.50	44.85	46.20	47.55	48.90	50.25	51.60	52.95	
	Plain	Non-Std	Non-Std	19.45	20.60	22.00	25.05	31.75	35.40	36.75	38.10	39.45	40.80	42.15	43.50	44.85	46.20	47.55	48.90	50.25	51.60	52.95	
	Non-Std	Non-Std	13.40	19.45	19.65	20.45	21.25	22.05	22.85	23.65	24.45	25.25	26.05	26.85	27.65	28.45	29.25	30.05	30.85	31.65	32.45	33.25	
	Non-Std	Non-Std	13.40	19.45	19.65	20.45	21.25	22.05	22.85	23.65	24.45	25.25	26.05	26.85	27.65	28.45	29.25	30.05	30.85	31.65	32.45	33.25	
BESAW	19.50	19.50	19.50	24.50	24.50	27.00	28.00	31.75	28.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00	37.00	38.00	39.00	40.00	41.00	
	Plain	Non-Std	Non-Std	24.50	24.50	27.00	28.00	31.75	28.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00	37.00	38.00	39.00	40.00	41.00	
	Non-Std	Non-Std	19.50	24.50	24.70	25.50	26.30	27.10	27.90	28.70	29.50	30.30	31.10	31.90	32.70	33.50	34.30	35.10	35.90	36.70	37.50	38.30	
	Non-Std	Non-Std	19.50	24.50	24.70	25.50	26.30	27.10	27.90	28.70	29.50	30.30	31.10	31.90	32.70	33.50	34.30	35.10	35.90	36.70	37.50	38.30	
BOWERS	15.30	16.20	17.10	21.90	22.20	23.50	26.20	33.90	35.60	37.30	39.00	40.70	42.40	44.10	45.80	47.50	49.20	50.90	52.60	54.30	56.00	57.70	
	Plain	Non-Std	Non-Std	21.90	22.20	23.50	26.20	33.90	35.60	37.30	39.00	40.70	42.40	44.10	45.80	47.50	49.20	50.90	52.60	54.30	56.00	57.70	
	Non-Std	Non-Std	15.30	16.20	16.40	17.20	18.00	18.80	19.60	20.40	21.20	22.00	22.80	23.60	24.40	25.20	26.00	26.80	27.60	28.40	29.20	30.00	
	Non-Std	Non-Std	15.30	16.20	16.40	17.20	18.00	18.80	19.60	20.40	21.20	22.00	22.80	23.60	24.40	25.20	26.00	26.80	27.60	28.40	29.20	30.00	
BRAENDER	12.90	12.90	12.90	16.70	17.40	18.10	19.35	21.85	24.35	25.05	25.75	26.45	27.15	27.85	28.55	29.25	30.00	30.75	31.50	32.25	33.00	33.75	
	Plain	Non-Std	Non-Std	16.70	17.40	18.10	19.35	21.8															

Note—C = clincher, Q = quick detachable, and S = straight side. When made in both clincher and quick detachable styles, the fact is indicated by a †; when made in both quick detachable and straight side, a * is used, and when made in clincher and straight side, a ‡ is used.

TIRES AND TUBES—Continued

Trade Name and Tread	3x28	3x30	3x32	3 1/2x30	3 1/2x31	3 1/2x32	3 1/2x34	3 1/2x36	4x30	4x31	4x32	4x33	4x34	4x35	4x36	4 1/2x32	4 1/2x33	4 1/2x34	4 1/2x35	4 1/2x36	4 1/2x37	5x35	5x36	5x37	5 1/2x35	5 1/2x36	5 1/2x37
BUTLER (Cont'd)																											
Arabian Non-Skid	14.45	18.65	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60	22.60
Defiance Red Tubes	3.00	3.75	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95
Defiance Gray Tubes	2.55	3.10	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
Defiance Double Wall Tubes	2.95	3.90	4.10	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
CAPITOL																											
Plain	12.65	16.25	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90
Non-Skid	13.50	17.10	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75
Redman Tubes	3.50	4.20	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Paragon Gray Tubes	3.50	3.80	3.50	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55
CARSRING																											
Plain	16.55	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Clincher Tread	18.60	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10	24.10
Non-Skid	2.25	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35
Red Tubes	2.65	3.40	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Gray Tubes	2.65	3.40	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
CENTURY																											
Non-Skid	18.50	24.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75	26.75
Gray Tubes	2.55	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Red Tubes	3.45	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55
CHESTER																											
Non-Skid	12.25	16.00	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75
Plain	13.75	18.50	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40
Red Tubes	3.30	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
Gray Tubes	2.85	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
CLEVELAND-STANDARD																											
Non-Skid	18.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Plain	19.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
Red Tubes	3.60	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Gray Tubes	3.20	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
COLUMBIA																											
Non-Skid	14.30	17.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90	19.90
Red Tubes	3.30	3.95	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
Gray Tubes	3.00	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
COMBINATION																											
Non-Skid	12.75	16.05	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55
Plain	15.05	19.05	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55
Red Tubes	3.30	3.75	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80
Gray Tubes	3.00	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45
COMMUNITY																											
Non-Skid	11.10	14.40	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
Plain	11.65	15.10	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70	16.70
Red Tubes	3.30	3.75	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80
Gray Tubes	2.85	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
COMPRESSION CONTINENTAL																											
Non-Skid	13.90	17.25	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Plain	14.25	17.60	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10
Red Tubes	3.15	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Gray Tubes	3.00	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45
CONVERSE																											
Non-Skid	11.85	15.20	16.70	16.70	1																						

DUPLEX	Tubes	4.80	4.85	6.15	6.25	6.40	7.20	7.50	7.70	8.00	8.25	8.55	9.05	9.05	10.45	10.45	10.70	10.95	11.20	11.50	12.90	13.35	13.35	14.75	15.15
	Plain	13.65	14.55	15.60	15.85	19.55	19.55	29.70	30.90	31.95	32.05	35.25	36.35	36.35	42.05	44.05	45.45	46.95	48.40	49.75	50.90	58.50	60.15	60.15	70.35
	Non-Skid	19.40	21.00	22.75	23.85	29.40	29.40	38.40	39.55	41.25	41.95	44.00	46.70	48.10	53.05	53.05	54.70	56.45	58.05	59.75	67.20	68.50	69.60	80.25	82.80
EAST PALESTINE	Red Tubes	3.60	3.85	4.10	5.15	5.30	5.75	7.25	7.50	7.75	8.05	8.20	8.50	8.70	9.05	9.80	10.05	10.35	10.60	11.00	12.25	12.95	14.55	14.55	14.90
	Plain	17.30	17.70	21.80	22.85	26.30	27.50	32.50	33.60	34.70	35.80	36.90	38.00	39.10	40.20	41.30	42.40	43.50	44.60	45.70	46.80	47.90	49.00	50.10	51.20
	Non-Skid	21.70	22.10	26.20	27.25	30.70	31.90	36.90	38.00	39.10	40.20	41.30	42.40	43.50	44.60	45.70	46.80	47.90	49.00	50.10	51.20	52.30	53.40	54.50	55.60
EHMAN	Red Tubes	3.35	3.35	4.45	4.45	4.60	4.95	5.40	5.45	5.55	5.75	5.95	6.05	6.25	6.35	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
EMPIRE	Gray Tubes	3.10	3.05	3.75	3.80	3.85	4.55	4.75	4.85	4.95	5.05	5.15	5.25	5.35	5.45	5.55	5.65	5.75	5.85	5.95	6.05	6.15	6.25	6.35	6.45
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
ENDURANCE	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
ESSEX	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
EUREKA	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
FAURE	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
FEDERAL	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
FELSEN	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
FIRESTONE	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
FISK	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
GENERAL	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55	30.75	31.95	33.15	34.35	35.55	36.75	37.95	39.15	40.35	41.55	42.75	43.95
	Non-Skid	13.15	13.40	17.30	18.15	20.05	22.25	24.90	24.90	26.55	27.75	28.95	30.15	31.35	32.55	33.75	34.95	36.15	37.35	38.55	39.75	40.95	42.15	43.35	44.55
GIANT	Gray Tubes	3.45	3.65	4.05	4.20	4.20	4.65	5.15	5.55	5.65	5.90	6.05	6.20	6.40	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55
	Plain	12.55	12.80	16.70	17.55	19.45	21.65	24.30	24.30	25.95	27.15	28.35	29.55												

TIRES AND TUBES—Continued

Name	Trade Name and Tread	3x28	3x30	31x31	31x32	31x34	31x36	4x30	4x31	4x32	4x33	4x34	4x35	4x36	41x32	41x33	41x34	41x35	41x36	41x37	5x35	5x36	5x37	51x37	51x38
FALLS	Plain	18.30	25.20	26.25	26.95	29.25	33.50	34.75	36.20	37.50	38.75	39.85	41.75	44.10	47.45	49.00	50.50	51.70	53.40	61.95	63.65	67.35			
	Non-Skid Red Tubes	21.90 4.35	29.90 6.20	31.30 6.40	32.10 6.55	35.00 6.85	41.30 7.90	42.85 8.15	44.50 8.35	45.75 8.60	47.25 8.80	48.45 9.00	49.95 9.25	53.60 10.25	56.05 10.50	57.00 10.80	58.10 11.05	60.65 11.35	62.00 11.60	62.00 11.60	72.45 12.70	73.90 13.00	75.60 13.25		91.75 15.55
G & J	Plain	12.05	16.30	17.15	18.90	24.70	24.85	26.20	25.45	26.70	28.00	29.30	32.90	29.00		36.75	38.40	39.00	40.60	43.80	51.15	46.45			
	Non-Skid Gray Tubes	12.90 3.60	13.30 4.65	13.70 4.85	15.85 4.90	25.85 5.35	26.20 5.55	27.50 5.75	26.70 5.95	28.00 6.15	29.30 6.35	30.60 6.55	34.55	30.45		38.60	40.95	42.60	40.95	46.00	53.70	48.80			
GREAT EASTON	Red Tubes	2.65	4.65	4.80	4.90	4.30	4.35	4.85	5.00	5.05	5.15	5.25	5.45	5.65		6.45	6.60	6.85	7.10	8.00	8.15	8.30			
	Crown Plain	3.65	4.65	4.80	4.90	4.30	4.35	4.85	5.00	5.05	5.15	5.25	5.45	5.65		6.45	6.60	6.85	7.10	8.00	8.15	8.30			
GRYPHON	Non-Skid	15.85	20.30	22.45	23.10	25.15	30.50	27.50	28.85	30.20	31.60	32.90	36.10	41.75		38.95	40.00	41.00	42.05	47.10	48.65	49.75			
	Gray Tubes	17.85	22.45	24.55	25.90	28.95	32.80	32.80	33.65	34.30	35.35	36.20	39.20	45.00		46.30	47.60	48.50	49.90	55.65	57.90	59.95			
GRYPHON	Red Tubes	2.85	3.15	3.60	3.75	3.95	4.65	5.00	4.85	5.05	5.05	5.20	5.35	5.65		7.15	6.50	7.70	7.90	8.15	8.50	8.95			
	Non-Skid	3.30	4.15	4.25	4.40	4.65	5.35	5.50	5.65	5.90	6.10	6.20	6.40	6.75		7.45	7.70	8.05	8.35	8.65	8.95	9.50			
HAMILTON	Plain	118.80	122.90	125.05	126.90	129.00	138.50	131.50	132.65	133.90	135.20	136.10	137.20	138.45		143.15	144.45	145.70	146.90	150.00	153.00	156.00			
	Gray Tubes and Red Tubes	122.60	128.15	129.05	132.15	135.20	140.10	141.30	142.75	144.10	146.60	148.10	149.60	151.10		157.05	158.35	159.65	160.95	164.00	167.00	169.70			
HARDMAN	Non-Skid	13.45	18.65	19.65	21.40	24.20	27.10	28.00	29.15	30.60	31.25	32.80	33.35	35.05		39.80	41.00	43.45	44.10	45.95	52.85	53.65			
	Pure Gum Tubes	2.85	3.45	3.60	3.75	3.95	4.35	4.90	4.60	4.85	5.05	5.20	5.35	5.65		6.30	6.60	6.70	7.10	7.70	7.90	8.15			
HARDMAN	Perfection Pink Tubes	3.30	4.15	4.25	4.40	4.65	4.95	5.60	5.50	5.65	5.90	6.15	6.30	6.45		7.30	7.45	7.80	7.85	8.50	8.50	8.80			
	Plain	18.00	22.50	24.00	25.75	28.00	31.00	31.00	32.00	33.00	34.00	35.00	36.00	37.00		43.50	44.00	45.00	46.20	48.00	46.65	48.00			
JUNIOR	Red Tubes	21.25	24.35	26.75	27.50	32.50	35.00	37.00	38.00	40.25	41.50	42.50	44.50	46.00		47.50	48.50	49.50	50.50	52.50	50.75	52.00			
	Non-Skid	3.95	4.35	5.00	5.10	5.25	5.85	6.30	6.50	6.75	6.95	7.30	7.40	7.60		8.40	8.70	8.90	9.20	10.40	10.75	10.90			
HARTFORD	Plain	13.75	18.50	19.50	20.75	23.50	26.25	28.50	29.50	30.50	31.75	32.90	34.50	36.00		38.50	41.00	42.00	43.00	45.00	51.00	53.00			
	Gray Tubes	15.00	19.50	20.50	22.00	25.00	27.50	29.50	30.50	31.50	33.00	34.00	35.00	36.00		37.75	38.00	39.00	40.00	42.00	47.00	50.00			
HARTFORD	Non-Skid	12.05	16.30	17.15	18.90	24.70	24.75	26.20	25.45	26.65	27.30	32.90	34.55	36.05		38.75	38.40	39.00	40.60	43.80	51.15	46.45			
	Gray Tubes	12.90	13.20	13.75	14.00	14.85	16.45	17.10	18.00	19.85	20.85	22.60	24.60	26.45		30.00	30.40	30.95	32.60	46.00	53.70	48.80			
HAWKEYE	Red Tubes	2.85	3.00	3.75	3.85	4.00	4.65	4.85	4.85	5.00	5.15	5.25	5.45	5.65		6.45	6.60	6.85	7.10	8.00	8.15	8.30			
	Plain	3.65	4.65	4.80	4.90	5.35	5.35	6.00	6.05	6.15	6.25	6.55	6.75	6.95		8.10	8.25	8.40	8.50	9.65	9.90	10.10			
HAWKEYE	Non-Skid	12.20	13.15	16.70	19.50	21.50	25.95	26.50	28.50	28.00	28.45	30.25	30.65	32.05		37.00	37.75	39.40	40.05	41.75	45.80	46.65			
	Gray Tubes	13.45	14.45	18.70	21.50	24.15	28.65	29.20	30.75	31.40	32.45	34.35	34.75	36.15		41.35	42.35	44.10	44.55	46.20	52.50	53.25			
HENDRIE	Inset Non-Skid	17.70	19.05	21.95	27.95	30.55	34.50	37.00	37.75	39.80	40.55	42.35	43.35	44.35		48.55	49.60	52.70	58.35	62.70	66.50	71.00			
	Red Tubes	3.25	3.35	3.85	4.05	4.25	4.30	5.40	5.90	5.75	5.90	6.00	6.10	6.20		7.15	7.20	7.30	7.50	7.70	8.00	8.90			
HENDRIE	Gray Tubes	2.80	2.90	3.45	3.55	3.80	4.25	4.80	4.50	4.50	5.05	5.20	5.35	5.45		6.40	6.45	6.55	6.65	6.75	7.70	7.80			
	Non-Skid	14.65	16.35	18.10	20.25	22.70	26.35	28.85	27.85	28.50	29.15	30.15	30.15	30.15		37.00	38.30	39.00	40.30	41.70	47.00	48.65			
HERCULES	Plain	17.45	18.35	21.95	24.45	26.60	30.05	31.10	31.90	32.95	33.70	34.60	35.15	36.15		42.95	43.90	46.90	47.55	49.25	56.75	57.95			
	Gray Tubes	20.05	21.05	22.20	25.75	29.00	34.50	35.75	36.65	37.90	38.75	39.85	40.45	41.65		48.65	49.45	50.20	53.90	54.65	65.20	66.65			
HOOD	Non-Skid	3.15	3.30	3.70	4.05	4.30	5.25	5.35	5.50	5.70	5.85	5.95	6.10	6.25		6.95	7.10	7.15	7.25	7.60	8.55	8.25			
	Gray Tubes	3.95	4.00	4.10	4.80	4.85	4.90	5.15	5.25	5.35	5.50	5.65	5.75	5.85		8.75	8.85	9.15	9.35	10.60	10.70	10.90			
KANSAS CITY	Non-Skid	6.80	7.20	9.30	10.75	11.95	13.75	14.35	16.35	15.25	15.55	16.35	16.35	16.35		8.35	8.55	8.75	8.95	22.70	24.60	25.85			
	Plain	7.20	7.60	9.75	10.20	12.55	14.40	15.10	15.35	16.00	16.25	16.95	17.25	17.25		21.85	22.70	23.95	23.95	23.80	25.85	26.15			
HOOD	Gray Tubes	1.82	1.93	2.16	2.23	2.42	2.90	2.97	3.07	3.14	3.23	3.33	3.37	3.47		4.05	4.15	4.15	4.17	4.27	4.92	4.97			
	Non-Skid	19.20	20.70	25.50	27.25	28.65	30.05	33.60	33.60	34.10	34.75	35.65	36.65	37.65		47.20	49.10	50.35	51.35	52.50	63.25	64.25			
HOWE	Arrow Non-Skid	22.50	25.00	31.90	33.15	35.50	40.75	43.70	46.60	47.50	48.65	49.75	50.75	51.75		56.30	56.90	58.10	58.75	59.50	68.00	68.60			
	Puritan Plain	22.50	25.00	31.90	33.15	35.50	40.75	43.70	46.60	47.50	48.65	49.75	50.75	51.75		56.30	56.90	58.10	58.75	59.50	68.00	68.60			
KANSAS CITY	Non-Skid	17.50	19.30	21.00	22.75	26.00	30.00	32.70	33.50	34.25	35.00	35.75	36.50	37.25		43.45	44.40	45.90	46.50	47.85	55.70	56.70			
	Gray Tubes	3.85	4.00	4.50	4.95	5.20	5.80	6.00	6.05	6.10	6.25	6.30	6.40	6.55		7.65	7.80	7.95	8.10	8.35	9.45	9.60			
INDIANA	Non-Skid	19.20	21.00	22.75	24.50	27.75	32.75	35.75	36.80	37.75	38.75	39.00	40.50	42.00		46.25	48.20	50.25	52.80	64.05	62.50	63.95			
	Gray Tubes	2.75	3.05	3.25	3.45	4.00	4.35	4.40	4.65	4.75	4.85	4.95	5.05	5.10		5.90	6.05	6.15	6.25	6.45	7.50	7.65			
KEATON	Non-Skid	3.40	3.45	4.15	4.20	4.35	5.30	5.40	5.50	5.65	5.75	5.85	5.90	6.00		7.30	7.45	7.60	7.85	9.25	9.35	9.45			
	Plain	12.25	16.60	16.25	19.20	21.65	25.30	25.30	25.75	27.25	27.75	28.75	29.25	29.25		37.15	39.35	39.35	39.35	41.55	46.25	48.75			
KELLY-SPRINGFIELD	Non-Skid																								

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	3x28	3x30	31x31	31x32	31x34	31x36	4x30	4x31	4x32	4x33	4x34	4x35	4x36	41x32	41x33	41x34	41x35	41x36	41x37	5x35	5x36	5x37	51x37	51x38
ORVILLE	Plain Non-Skid Gray Tubes Sealon Red Tubes	c11.00 c12.90 2.85 3.55	c13.85 c19.95 3.25 3.70	c15.35 c19.95 3.25 4.25	c17.65 c20.65 3.40 4.40	c23.50 c27.55 4.45 5.85	c25.50 c29.50 4.60 6.00	c25.20 c29.50 4.75 6.15	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25	c25.75 c30.15 4.85 6.25
PARA-BALL	Plain Non-Skid Gray Tubes	12.40 13.05 3.00 3.30	12.55 13.20 3.00 3.30	13.10 13.75 3.00 3.30	13.25 13.90 3.00 3.30	13.40 14.05 3.00 3.30	13.55 14.20 3.00 3.30	13.70 14.35 3.00 3.30	13.85 14.50 3.00 3.30	14.00 14.65 3.00 3.30	14.15 14.80 3.00 3.30	14.30 14.95 3.00 3.30	14.45 15.10 3.00 3.30	14.60 15.25 3.00 3.30	14.75 15.40 3.00 3.30	14.90 15.55 3.00 3.30	15.05 15.70 3.00 3.30	15.20 15.85 3.00 3.30	15.35 16.00 3.00 3.30	15.50 16.15 3.00 3.30	15.65 16.30 3.00 3.30	15.80 16.45 3.00 3.30	15.95 16.60 3.00 3.30	16.10 16.75 3.00 3.30	
PIERCE-ARROW	Morton Plain Non-Skid Gray Tubes	11.85 12.50 3.00 3.30	12.00 12.65 3.00 3.30	12.15 12.80 3.00 3.30	12.30 12.95 3.00 3.30	12.45 13.10 3.00 3.30	12.60 13.25 3.00 3.30	12.75 13.40 3.00 3.30	12.90 13.55 3.00 3.30	13.05 13.70 3.00 3.30	13.20 13.85 3.00 3.30	13.35 14.00 3.00 3.30	13.50 14.15 3.00 3.30	13.65 14.30 3.00 3.30	13.80 14.45 3.00 3.30	13.95 14.60 3.00 3.30	14.10 14.75 3.00 3.30	14.25 14.90 3.00 3.30	14.40 15.05 3.00 3.30	14.55 15.20 3.00 3.30	14.70 15.35 3.00 3.30	14.85 15.50 3.00 3.30	15.00 15.65 3.00 3.30	15.15 15.80 3.00 3.30	
PEERLESS	Germaine Non-Skid Gray Tubes	17.50 18.15 3.00 3.30	17.65 18.30 3.00 3.30	17.80 18.45 3.00 3.30	17.95 18.60 3.00 3.30	18.10 18.75 3.00 3.30	18.25 18.90 3.00 3.30	18.40 19.05 3.00 3.30	18.55 19.20 3.00 3.30	18.70 19.35 3.00 3.30	18.85 19.50 3.00 3.30	19.00 19.65 3.00 3.30	19.15 19.80 3.00 3.30	19.30 19.95 3.00 3.30	19.45 20.10 3.00 3.30	19.60 20.25 3.00 3.30	19.75 20.40 3.00 3.30	19.90 20.55 3.00 3.30	20.05 20.70 3.00 3.30	20.20 20.85 3.00 3.30	20.35 21.00 3.00 3.30	20.50 21.15 3.00 3.30	20.65 21.30 3.00 3.30	20.80 21.45 3.00 3.30	
PENNSYLVANIA	Puncture and Blow-Out Proof Non-Skid Gray Tubes	3.25 3.40 3.00 3.30	3.40 3.55 3.00 3.30	3.55 3.70 3.00 3.30	3.70 3.85 3.00 3.30	3.85 4.00 3.00 3.30	4.00 4.15 3.00 3.30	4.15 4.30 3.00 3.30	4.30 4.45 3.00 3.30	4.45 4.60 3.00 3.30	4.60 4.75 3.00 3.30	4.75 4.90 3.00 3.30	4.90 5.05 3.00 3.30	5.05 5.20 3.00 3.30	5.20 5.35 3.00 3.30	5.35 5.50 3.00 3.30	5.50 5.65 3.00 3.30	5.65 5.80 3.00 3.30	5.80 5.95 3.00 3.30	5.95 6.10 3.00 3.30	6.10 6.25 3.00 3.30	6.25 6.40 3.00 3.30	6.40 6.55 3.00 3.30	6.55 6.70 3.00 3.30	
PERFECTION	Bar Circle Non-Skid Gray Tubes	11.70 12.35 3.00 3.30	11.85 12.50 3.00 3.30	12.00 12.65 3.00 3.30	12.15 12.80 3.00 3.30	12.30 12.95 3.00 3.30	12.45 13.10 3.00 3.30	12.60 13.25 3.00 3.30	12.75 13.40 3.00 3.30	12.90 13.55 3.00 3.30	13.05 13.70 3.00 3.30	13.20 13.85 3.00 3.30	13.35 14.00 3.00 3.30	13.50 14.15 3.00 3.30	13.65 14.30 3.00 3.30	13.80 14.45 3.00 3.30	13.95 14.60 3.00 3.30	14.10 14.75 3.00 3.30	14.25 14.90 3.00 3.30	14.40 15.05 3.00 3.30	14.55 15.20 3.00 3.30	14.70 15.35 3.00 3.30	14.85 15.50 3.00 3.30	15.00 15.65 3.00 3.30	
PERFECTION	Ebonny Non-Skid Gray Tubes	14.05 14.70 3.00 3.30	14.20 14.85 3.00 3.30	14.35 15.00 3.00 3.30	14.50 15.15 3.00 3.30	14.65 15.30 3.00 3.30	14.80 15.45 3.00 3.30	14.95 15.60 3.00 3.30	15.10 15.75 3.00 3.30	15.25 15.90 3.00 3.30	15.40 16.05 3.00 3.30	15.55 16.20 3.00 3.30	15.70 16.35 3.00 3.30	15.85 16.50 3.00 3.30	16.00 16.65 3.00 3.30	16.15 16.80 3.00 3.30	16.30 16.95 3.00 3.30	16.45 17.10 3.00 3.30	16.60 17.25 3.00 3.30	16.75 17.40 3.00 3.30	16.90 17.55 3.00 3.30	17.05 17.70 3.00 3.30	17.20 17.85 3.00 3.30	17.35 18.00 3.00 3.30	
PHARIS	Vacuum C. Non-Skid Gray Tubes	15.60 16.25 3.00 3.30	15.75 16.40 3.00 3.30	15.90 16.55 3.00 3.30	16.05 16.70 3.00 3.30	16.20 16.85 3.00 3.30	16.35 17.00 3.00 3.30	16.50 17.15 3.00 3.30	16.65 17.30 3.00 3.30	16.80 17.45 3.00 3.30	16.95 17.60 3.00 3.30	17.10 17.75 3.00 3.30	17.25 17.90 3.00 3.30	17.40 18.05 3.00 3.30	17.55 18.20 3.00 3.30	17.70 18.35 3.00 3.30	17.85 18.50 3.00 3.30	18.00 18.65 3.00 3.30	18.15 18.80 3.00 3.30	18.30 18.95 3.00 3.30	18.45 19.10 3.00 3.30	18.60 19.25 3.00 3.30	18.75 19.40 3.00 3.30	18.90 19.55 3.00 3.30	
PORTAGE	Paruco Gray Tubes Non-Skid Gray Tubes	2.80 2.95 3.00 3.30	2.95 3.10 3.00 3.30	3.10 3.25 3.00 3.30	3.25 3.40 3.00 3.30	3.40 3.55 3.00 3.30	3.55 3.70 3.00 3.30	3.70 3.85 3.00 3.30	3.85 4.00 3.00 3.30	4.00 4.15 3.00 3.30	4.15 4.30 3.00 3.30	4.30 4.45 3.00 3.30	4.45 4.60 3.00 3.30	4.60 4.75 3.00 3.30	4.75 4.90 3.00 3.30	4.90 5.05 3.00 3.30	5.05 5.20 3.00 3.30	5.20 5.35 3.00 3.30	5.35 5.50 3.00 3.30	5.50 5.65 3.00 3.30	5.65 5.80 3.00 3.30	5.80 5.95 3.00 3.30	5.95 6.10 3.00 3.30	6.10 6.25 3.00 3.30	
PORTER	Pure Gum Red Tubes Non-Skid Gray Tubes	17.70 18.35 3.00 3.30	17.85 18.50 3.00 3.30	18.00 18.65 3.00 3.30	18.15 18.80 3.00 3.30	18.30 18.95 3.00 3.30	18.45 19.10 3.00 3.30	18.60 19.25 3.00 3.30	18.75 19.40 3.00 3.30	18.90 19.55 3.00 3.30	19.05 19.70 3.00 3.30	19.20 19.85 3.00 3.30	19.35 20.00 3.00 3.30	19.50 20.15 3.00 3.30	19.65 20.30 3.00 3.30	19.80 20.45 3.00 3.30	19.95 20.60 3.00 3.30	20.10 20.75 3.00 3.30	20.25 20.90 3.00 3.30	20.40 21.05 3.00 3.30	20.55 21.20 3.00 3.30	20.70 21.35 3.00 3.30	20.85 21.50 3.00 3.30	21.00 21.65 3.00 3.30	
QUAKER CITY	April Gray Tubes Non-Skid Gray Tubes	11.90 12.55 3.00 3.30	12.05 12.70 3.00 3.30	12.20 12.85 3.00 3.30	12.35 13.00 3.00 3.30	12.50 13.15 3.00 3.30	12.65 13.30 3.00 3.30	12.80 13.45 3.00 3.30	12.95 13.60 3.00 3.30	13.10 13.75 3.00 3.30	13.25 13.90 3.00 3.30	13.40 14.05 3.00 3.30	13.55 14.20 3.00 3.30	13.70 14.35 3.00 3.30	13.85 14.50 3.00 3.30	14.00 14.65 3.00 3.30	14.15 14.80 3.00 3.30	14.30 14.95 3.00 3.30	14.45 15.10 3.00 3.30	14.60 15.25 3.00 3.30	14.75 15.40 3.00 3.30	14.90 15.55 3.00 3.30	15.05 15.70 3.00 3.30	15.20 15.85 3.00 3.30	
RACINE	"T.T.T." Non-Skid Gray Tubes	14.30 14.95 3.00 3.30	14.45 15.10 3.00 3.30	14.60 15.25 3.00 3.30	14.75 15.40 3.00 3.30	14.90 15.55 3.00 3.30	15.05 15.70 3.00 3.30	15.20 15.85 3.00 3.30	15.35 16.00 3.00 3.30	15.50 16.15 3.00 3.30	15.65 16.30 3.00 3.30	15.80 16.45 3.00 3.30	15.95 16.60 3.00 3.30	16.10 16.75 3.00 3.30	16.25 16.90 3.00 3.30	16.40 17.05 3.00 3.30	16.55 17.20 3.00 3.30	16.70 17.35 3.00 3.30	16.85 17.50 3.00 3.30	17.00 17.65 3.00 3.30	17.15 17.80 3.00 3.30	17.30 17.95 3.00 3.30	17.45 18.10 3.00 3.30	17.60 18.25 3.00 3.30	
RACINE	"Horse Shoe" Cord Non-Skid Gray Tubes	2.75 2.90 3.00 3.30	2.90 3.05 3.00 3.30	3.05 3.20 3.00 3.30	3.20 3.35 3.00 3.30	3.35 3.50 3.00 3.30	3.50 3.65 3.00 3.30	3.65 3.80 3.00 3.30	3.80 3.95 3.00 3.30	3.95 4.10 3.00 3.30	4.10 4.25 3.00 3.30	4.25 4.40 3.00 3.30	4.40 4.55 3.00 3.30	4.55 4.70 3.00 3.30	4.70 4.85 3.00 3.30	4.85 5.00 3.00 3.30	5.00 5.15 3.00 3.30	5.15 5.30 3.00 3.30	5.30 5.45 3.00 3.30	5.45 5.60 3.00 3.30	5.60 5.75 3.00 3.30	5.75 5.90 3.00 3.30	5.90 6.05 3.00 3.30	6.05 6.20 3.00 3.30	
REPUBLIC	Country Road Non-Skid Gray Tubes	12.90 13.55 3.00 3.30	13.05 13.70 3.00 3.30	13.20 13.85 3.00 3.30	13.35 14.00 3.00 3.30	13.50 14.15 3.00 3.30	13.65 14.30 3.00 3.30	13.80 14.45 3.00 3.30	13.95 14.60 3.00 3.30	14.10 14.75 3.00 3.30	14.25 14.90 3.00 3.30	14.40 15.05 3.00 3.30	14.55 15.20 3.00 3.30	14.70 15.35 3.00 3.30	14.85 15.50 3.00 3.30	15.00 15.65 3.00 3.30	15.15 15.80 3.00 3.30	15.30 15.95 3.00 3.30	15.45 16.10 3.00 3.30	15.60 16.25 3.00 3.30	15.75 16.40 3.00 3.30	15.90 16.55 3.00 3.30	16.05 16.70 3.00 3.30	16.20 16.85 3.00 3.30	
REVERE	Country Road Non-Skid Gray Tubes	15.05 15.70 3.00 3.30	15.20 15.85 3.00 3.30	15.35 16.00 3.00 3.30	15.50 16.15 3.00 3.30	15.65 16.30 3.00 3.30	15.80 16.45 3.00 3.30	15.95 16.60 3.00 3.30	16.10 16.75 3.00 3.30	16.25 16.90 3.00 3.30	16.40 17.05 3.00 3.30	16.55 17.20 3.00 3.30	16.70 17.35 3.00 3.30	16.85 17.50 3.00 3.30	17.00 17.65 3.00 3.30	17.15 17.80 3.00 3.30	17.30 17.95 3.00 3.30	17.45 18.10 3.00 3.30	17.60 18.25 3.00 3.30	17.75 18.40 3.00 3.30	17.90 18.55 3.00 3.30	18.05 18.70 3.00 3.30	18.20 18.85 3.00 3.30	18.35 19.00 3.00 3.30	
REYNOLDS	Staggard Non-Skid Gray Tubes	12.00 12.65 3.00 3.30	12.15 12.80 3.00 3.30	12.30 12.95 3.00 3.30	12.45 13.10 3.00 3.30	12.60 13.25 3.00 3.30	12.75 13.40 3.00 3.30	12.90 13.55 3.00 3.30	13.05 13.70 3.00 3.30	13.20 13.85 3.00 3.30	13.35 14.00 3.00 3.30	13.50 14.15 3.00 3.30	13.65 14.30 3.00 3.30	13.80 14.45 3.00 3.30	13.95 14.60 3.00 3.30	14.10 14.75 3.00 3.30	14.25 14.90 3.00 3.30	14.40 15.05 3.00 3.30	14.55 15.20 3.00 3.30	14.70 15.35 3.00 3.30	14.85 15.50 3.00 3.30	15.00 15.65 3.00 3.30	15.15 15.80 3.00 3.30	15.30 15.95 3.00 3.30	
RUBBER INS. METALS CO.	Para Tubes Non-Skid Gray Tubes	16.50 17.15 3.00 3.30	16.65 17.30 3.00 3.30	16.80 17.45 3.00 3.30	16.95 17.60 3.00 3.30	17.10 17.75 3.00 3.30	17.25 17.90 3.00 3.30	17.40 18.05 3.00 3.30	17.55 18.20 3.00 3.30	17.70 18.35 3.00 3.30	17.85 18.50 3.00 3.30	18.00 18.65 3.00 3.30	18.15 18.80 3.00 3.30	18.30 18.95 3.00 3.30	18.45 19.10 3.00 3.30	18.60 19.25 3.00 3.30	18.75 19.40 3.00 3.30	18.90 19.55 3.00 3.30	19.05 19.70 3.00 3.30	19.20 19.85 3.00 3.30	19.35 20.00 3.00 3.30	19.50 20.15 3.00 3.30	19.65 20.30 3.00 3.30	19.80 20.45 3.00 3.30	
RUBBER PRODUCTS	Century Red Tubes Non-Skid Gray Tubes	17.20 17.85 3.00 3.30	17.35 18.00 3.00 3.30	17.50 18.15 3.00 3.30	17.65 18.30 3.00 3.30	17.80 18.45 3.00 3.30	17.95 18																		

SEMPLE	STERLING	SCHAVOIR	SMITH	SOUTHERN	SPEEDWAY	STANDARD FOUR	STANDARD	STAR	STERLING	STRONGHOLD	SWINEHART	TEN BROECK	THERMOID	TYER	U. & G.	UNITED STATES	"G. & J." "Reverse" "Hartford," Royal Card Non-Skid	UNIVERSAL	VICTOR	VOORHEES	WILSON	WOODWORTH
Seeco Red Tubes	High Bar Non-Skid	Sterling Red Tubes	Jumbo Red Tubes	Tubes Plain	Red Tubes	Non-Skid	Gray Tubes	Gray Tubes	Non-Skid	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes	Gray Tubes
119.50	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40	122.40
3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10
10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35
8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95
7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35
6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05
4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75
3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45
2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85
1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note—C = clincher, Q = quick detachable, and S = straight side. When made in both clincher and quick detachable styles, the fact is indicated by a †; when made in both quick detachable and straight side, a * is used, and when made in clincher and straight side, a ‡ is used.

Gears Shifted Through Clutch Pedal

Small Lever on Steering Wheel, Operated Mechanically, Permits Driver to Select Speed

THE Gear Shift Co., 214 East Congress Street, Detroit, is manufacturing a device for shifting gears through the action of the clutch pedal. By this device the gears are shifted to any desired position by merely setting a small lever beneath the steering wheel and pressing the clutch pedal to the extreme downward position. The operation is entirely mechanical, is positive in its action, and employs no electrical or spring operated mechanism.

Fig. 1 shows the complete installation of the device. There is no gear-shift lever. This is replaced by the gear-shifting mechanism, housed in a metal case and mounted on the gearbox. The selective lever is mounted on a quadrant beneath the steering wheel and resembles a spark or throttle lever. Actual shifting is accomplished through the rod to the clutch pedal.

Shifting Mechanism

Fig. 2 shows the assembly of the shifting mechanism. It consists of two pairs of rocker plates, with pull plates working between each pair. In order to make it clear, only one pair, or half the assembly, is shown in the sketch. It is from the rocker plates that the pull plates are given the required forward-and-back motion necessary to shift the gears through the shifter rod. The operation is as follows:

By means of the selector lever, beneath the steering wheel, the desired selector plate is set in position for the shift. On pressing the clutch out, the dog is pressed

against the rocker plate by the selector. At this time the three other dogs are not engaged with their rocker plates. As the clutch plate, dog and rocker plate are all locked together, they are rotated together by pressing out the clutch pedal the entire distance. This, in turn, causes the pull plate to be moved in the necessary direction to throw the gear into the predetermined position, as the pull plate is pinned to the shifter rod in the gearbox.

On the return of the clutch pedal, the dogs are brought to neutral position by an aligning dog trip, shown in Fig. 2. This places them in position to be engaged with any desired rocker plate.

In driving, this device offers several advantages. The selector lever may be set on any desired speed, and by throwing out the clutch and letting it in again effect the shifting of the gears. For example, when driving on high, in traffic, the selector lever may be set for second speed, though the car is running on high. Then, in case of a forced stop, the gears are thrown into second ready for a quick getaway. This is done by pressing the clutch pedal way down.

Driver Can Feel Gears Engaging

Due to the mechanical action of the device, the driver can feel the gears engaging as well as though the shift were being made by a hand lever. Hence, if there is any tendency to clash, the driver can stay the shift until a proper meshing speed is obtained.

Another feature is that the gears cannot be shifted when the clutch is engaged, as the clutch must be released to shift the gears. This tends to increase the life of the gears.

The operation of the control lever requires no more exertion than does the movement of the spark and throttle levers. In fact, its motion and operation are very similar. Due to the location, its movement is not subject to interference by robes in winter driving or by a change of position on the part of the driver.

As a proof of the positive action of the device, the following demonstration was made: With the car running on high at about 6 m.p.h., the control lever was placed on the reverse position. The clutch was quickly thrown out, and again engaged. In spite of the adverse conditions, the gears were thrown into reverse, first stopping, and then reversing the car.

Such a shift is not advisable except in emergencies, as excessive strains are thrown on the driving system. It is, however, a good example of what the device will do.

As will be seen in the illustration, the

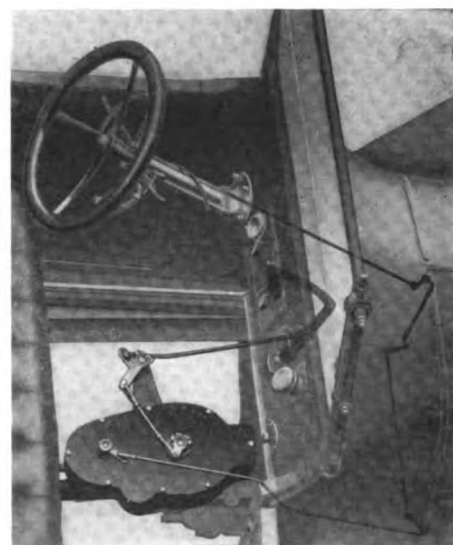


Fig. 1—Complete installation of gear-shifting device

construction is well adapted to production method. The plates are steel stampings, hardened, and the pins, cams, etc., may readily be made on automatic machines.

At present the device is being made only for the car manufacturer, though later it will be made for the retail trade.

Makers Buy Liberty Bonds

DETROIT, June 1—Detroit manufacturers assembled at the board of commerce last night subscribed to millions of dollars worth of Liberty Bonds. The Ford Motor Co. was the first and largest subscriber, taking \$1,250,000 worth of bonds for its employees. The Cadillac Motor Car Co., the Detroit Copper & Brass Rolling Mills and the Maxwell Motor Co. each subscribed for \$250,000 worth. The Continental Motors Corp., Detroit Steel Products Co., Timkin-Detroit Axle Co., Chalmers Motor Co., and the Fisher Body Corp. each subscribed to \$100,000. \$50,000 subscriptions were made by the Hayes Mfg. Co., the Edmunds & Jones Co., the Russel Wheel & Foundry Co., General Aluminum & Brass Mfg. Co.

Brosseau To Head International

NEW YORK, May 28—A. J. Brosseau, vice-president of the Federal Motor Truck Co., Detroit, will on June 1 become president of the International Motors Co. He will succeed Vernon Munroe, who will rest in California. Munroe became president of the International Motors about 3 years ago, when the company was reorganized. He was secretary prior to that.

Sexton Opens New Plant

CHICAGO, June 2—Preparing for national expansion, the Sexton Oil Co. opened its new factory at North Chicago last week. This will assure an output of 300,000 gal. per week without double shifts. A strong campaign will be carried on over the country for new business, which the concern will be able to handle with its increased facilities.

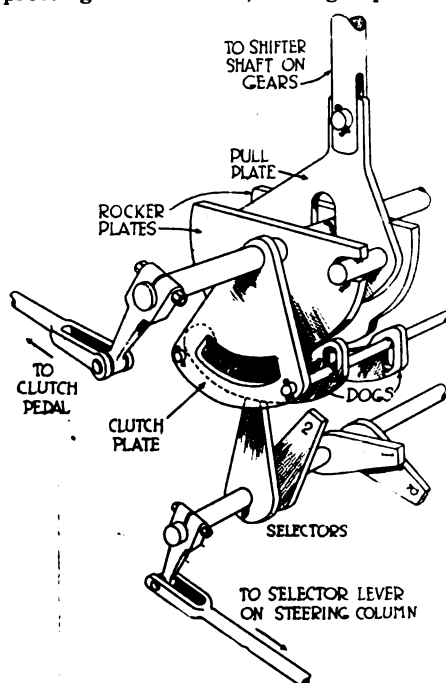


Fig. 2—Assembling shifting mechanism

What Is the Best Kind of Tractor Engine?

(Continued from page 14)

be supplied for Ford cars which are converted to burn kerosene.

Still, the whole question of industrial alcohol is in the hands of political economists; it is quite out of the province of the engineer, and it appears certain that heavy oil will be a cheaper and better fuel to use for a long time to come, if we can only discover how to overcome its inherent defects.

There is no reason for despair on this fuel question. It took a great concentration of effort to produce the gasoline motor and develop it to the present state of comparative efficiency. Nothing like the same amount of effort has been put into any other type of combustion engine, even the large gas engine has not had so much work done on it.

Look back 15 years. In the automobile field then there were about a dozen makers of automobile engines which would drive a car 10,000 miles without a thorough overhaul; all the other engines were more or less constantly troublesome. And the dozen good engines were nothing by comparison with what we have to-day.

The automobile industry has now been at work on the heavy-fuel engine for about a year, seriously that is, and it is reasonable to expect another five or more to elapse before much is accomplished.

To go back a little it may be explained why the four-cylinder engine seems better than any with a lesser number. A two-cylinder engine can be almost as well balanced but it cannot have the same even flow of power, the torque variations must be much greater. For the same power the pistons must be larger, and, as the impulsive pressures will be larger the individual parts must be stronger and heavier.

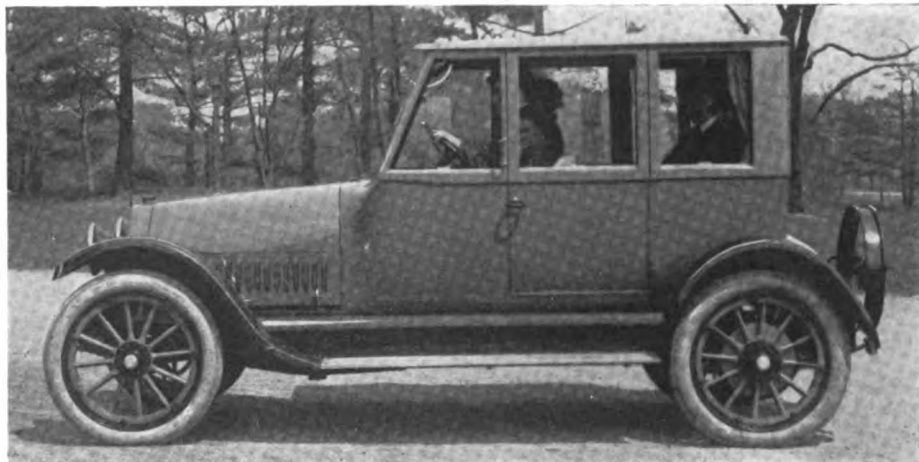
It is argued that there will be more two-cylinder tractors built this year than ever before, but the fact that Ford's output is so huge does not mean that all the features of the Ford car are examples of the best engineering. Output from one factory is no index whatever of engineering quality. Some of the most efficient and in every way best automobiles are made by small firms.

Small Firms Evolving Ideas

In the tractor field just now it is the small firms which are evolving the ideas, the large ones that are copying at a later date; at least, this is true to a great extent. It is true still in the automobile industry, it is true in other industries. The best possible thing for the development of any machine is to have a large number of competitive firms engaged in its production.

Descending to the simplest illustration for support of the contention that four is a minimum number of cylinders for a tractor, let anyone who doubts it ride on a half dozen different tractors, some with two and some with four cylinders. Then let him say on which he thinks nuts will

STUDEBAKER HAS SMALLEST SEDAN



This is called the smallest sedan in New York. It seats four passengers. It is attractive to look at and the details of comfort have been studiously worked out. There are a double rain-vision windshield, a cowl ventilator and Marshall springs. Straight pleat upholstery is used. All windows drop flush, including the back. There is a compartment at the rear for tools, tubes, etc. The color treatment is unusual in that it is lighter above the belt, the reverse of the accepted method. The upper part is a light cream brown and the lower a darker brown. The price is \$2,450. It was built especially for the New York Studebaker branch by the Waller Carriage Co., Merrimac, Conn., from a design made by George J. Mercer, New York

shake loose quickest, on which he thinks the gears will last longest. There is only one opinion.

There is going to be a need for small tractors with first cost as the prime consideration, as stated in the last article of this series. In small sizes the two-cylinder can be built cheaper and it may have a permanent place on this account. The smaller the machine the less the disadvantage of a two-cylinder engine; the cheaper a machine the more drawbacks must we be prepared to endure.

A cheap machine can never be as efficient as a machine made as well as possible commercially. This does not mean that the most expensive is necessarily the best, but merely that to make any machine honestly costs just so much; if we go below this figure something must be sacrificed.

Efficiency is a much misused word, but there is only one meaning for it in tractor estimation. *The most efficient tractor is the one which will do the most work for the least money for the longest time, and with the fewest breakdowns.* It does not take long for a tractor to burn up \$100 worth of fuel, even with an engine of high fuel efficiency, so \$100 more or less on the first cost of a medium-size machine is of little account. What mischief can be done by trying to save this on first cost may be exemplified by an actual experience.

A certain stock engine appearing on paper to be most excellently designed for tractor work was tried out experimentally by a tractor maker building his own motor. It was considerably cheaper than the latter engine, but the

design looked good. On the block the stock motor showed up well, in service it did well for a time. Then one thing after another happened. A connecting-rod broke, owing to defective material, the camshaft bearings gave out, apparently due to an original disalignment of the center bearing with the other two; after taking down the oil pan there was trouble in getting a tight joint on re-assembling because the finish of the faces was rough and too much reliance was placed upon a soft-cork gasket. There were other troubles, all of which were due to poor material or to rough workmanship.

To-day the tractor engines which are giving the best service are the best-built engines and the best-built engines are mostly being made along the lines of the best truck motors, only a little heavier: About halfway between the engines of a truck and a cruising type power boat for weight, and nearer the former for speed. The speed tendency is upward, because with higher speed come more even torque and smoother operation. Just as the truck engine developed from that of the passenger car and shouldered out other forms of heavy-duty engine, so does the tractor engine appear to be developing from the truck motor.

Is this going to be a lasting thing? It will be lasting as long as we use for tractors engines burning gas or such forms of vapor as act reasonably like a gas. If there is a change it will come in the form of something new and will affect tractor, truck, boat and even passenger car, possibly aircraft as well.

Type and Size of Electric Lamp Bulbs

Car	HEAD LAMPS		SIDE LAMPS		TAIL LAMP		DASH LAMP		Fuses Amp.	Socket	Wiring System	Type of Dimmer	Make of Battery	Style of Battery	Method of Focusing	Remarks
	Volt	Cp.	Volt	Cp.	Volt	Cp.	Volt	Cp.								
Abbott-Detroit	6-8	24	6-8	4H	6-8	2	6-8	2	....	Ediswan S*	Single	.....	Willard	SC 304	.....	*Dash Ediswan D.
Alter	6-8	18	6-8	4	6-8	2	6-8	2	....	Ediswan D.	.....	.....	Willard	LBA3-12	.....
Allen	6-8	15	6-8	4	6-8	2	6-8	2	15*	Ediswan S.	Single	Resist.	Gould	BSL	Adj. screw	*Side, tail and dash fuses 5 amp.
American	6-8	15	6-8	4H	3-4	2	3-4	2	20	Ediswan S*	Single	.....	Willard	LBA-66	Adj. screw	*Dash lamp double.
Anderson	6-8	21	6-8	12H	6-8	4	6-8	4	....	Ediswan S.	Single	.....	Willard	SLB68A	.....
Apperson	6-8	18	.....	.....	6-8	2	6-8	2	10	Ediswan D.	Double	Resist.	Willard	SLB68A	Adj. screw	
Arbens	6-8	15	6-8	6	6-8	2	6-8	2	25	Ediswan S.	Single	.....	Gen. Lead	135STR	.....
Auburn 30	6-8	15	6-8	4	6-8	2	6-8	2	25	Ediswan S*	Single	.....	Willard	LBA5-6	.....	*Dash Ediswan D.
Auburn 44	6-8	15	6-8	4	6-8	2	6-8	2	....	Ediswan S*	Single	.....	Willard	LBA6-6	.....	*Dash Ediswan D.
Austin	6-8	24	6-8	4H	6-8	4	.....	.....	.....	Ediswan S.	Single	.....	Willard	AD30	.....
Barley	6-8	15	6-8	4H	6-8	4	6-8	2	....	Ediswan S*	Single	.....	Willard	SL-B68A	.....	*Dash Ediswan D.
Bell	6-8	18	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	.....	Willard	SL-B68	.....	*Dash Ediswan D.
Biddle	6-8	21	6-8	4H	6-8	2	6-8	2	10	Ediswan S*	Single	.....	Willard	SJR-3	.....	*Dash Ediswan D.
Bimel D.	6-8	15	.....	.....	6-8	2	6-8	2	.....	Ediswan S.	.....	.....	.....	.....	.....
Bimel*	12-16	15	.....	.....	12-16	2	12-16	2	.....	Ediswan S.	.....	.....	.....	.....	.....	*Other models.
Brewster	12-16	40	12-16	4H	6-8	2	6-8	2	10	Ediswan S*	Single	.....	U.S.L.	CD611B	.....	*Dash Ediswan D.
Briscoe	6-8	15	.....	.....	6-8	2	6-8	4	10	Ediswan S*	Single	Resist.	Detroit	.....	Adj. bulb	*Dash Ediswan D.
Bour Davis	6-8	15	.....	.....	6-8	2	6-8	2	.....	Ediswan S.	.....	.....	.....	.....	.....
Buick	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	Ediswan S.	Single	.....	Exide	3XC-13-1	.....
Cadillac	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	Ediswan S.	Single	.....	Exide	.....	Adj. bulb	
Case	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	.....	Willard	SLB-68	Adj. bulb	
Chalmers	6-8	15	6-8	4H	6-8	4	6-8	4	15	Ediswan S.	Single	Series	Willard	LBA8CAH6v	.....
Chandler	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	.....	Willard	Elba-SP4	.....
Chevrolet	6-8	12	.....	.....	6-8	2	6-8	2	.....	Ediswan D.	.....	.....	U.S.L.	CD 311-C	.....	*Also Prest-O-Lite
Cole	6-8	15	.....	.....	6-8	2	6-8	2	.....	Ediswan D.	.....	.....	Willard	SL-5	.....
	6-8	15	6-8	2H	3-4	2	3-4	2	.....	Ediswan S*	Single	Resist.	Exide	3xc-15-1	Adj. bulb	*Dash lamp Ediswan D.
Commonwealth	6-8	15	6-8	4H	6-8	4	6-8	2	....	Ediswan S*	Single	.....	Detroit	.....	Adj. bulb	*Dash lamp Ediswan D.
Crawford	6-8	15	6-8	4H	6-8	4	6-8	2	15	Ediswan S*	Single	.....	Willard	SP-4	Gray & Davis	*Dash lamp Ediswan D.
Crow-Elkhart	6-8	15	6-8	8H	6-8	2	6-8	2	....	Ediswan D*	Single	Series	Willard	SC 304-4	.....	*Dash lamp Ediswan D.
Cunningham	6-8	15	6-8	4	6-8	2	6-8	4	15	Ediswan S*	Single	.....	Willard	SJR 5	Adj. bulb	*Tail lamp Ediswan S.
Daniels	6-8	18	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	Warner	Willard	SSB 610	.....	*Dash lamp Ediswan D.
Davis	6-8	15	.....	.....	6-8	4	6-8	4	....	Ediswan D.	Single	Resist.	Willard	5-6J	Adj. socket	*Dash lamp Ediswan D.
Detroit	6-8	15	.....	.....	6-8	2	6-8	2	.....	Ediswan D.	.....	.....	.....	.....	.....
Dispatch	12-16	21	.....	.....	12-16	2	6-8	2	2*	Ediswan D.	Double	.....	.....	LBA 5-6	.....
Dixie	6-8	15	.....	.....	3-4	2	3-4	2	10	Ediswan D.	Double	Resist.	Willard	LBA 5-6	Adj. socket	*Fuses 1-2 amp in tail lamp, 1 amp. in dash
Dodge	12-16	15	.....	.....	12-16	2	12-16	2	.....	Ediswan S.	Single	Resist.	Willard	LBA-3-12	Adj. screw	
Dorris	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S.	Single	Resist.	Willard	SJR-4	.....
Dort	6-8	15	.....	.....	6-8	4	6-8	2	10	Ediswan S*	Single	Resist.	Willard	SP-4	Adj. bulb	*Dash lamp Ediswan D.
Drexel	6-8	15	6-8	4H	6-8	2	6-8	2	10	Ediswan S.	Single	.....	Willard	LBA 6-80	.....	*Dash lamp Ediswan D.
Elgin	6-8	21	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	.....	Gardner	.....	Adj. socket	
Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	.....	Willard	SLB-610	Adj. socket	
Empire	6-8	15	6-8	4H	3-4	2	3-4	2*	20	Ediswan S.	Single	.....	Prest-O-Lite	611R	Adj. bulb	*Dash lamp Ediswan D.
Flat	6-8	15	6-8	4H	6-8	2	6-8	4	....	Ediswan S.	.....	.....	Willard	SLB-612	.....	*Tonneau lamp 6 vol. 2 cp.
Ford	6-8	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin	12-16	21	12-16	4H	6-8	2	6-8	2	10	Ediswan D.	.....	.....	Willard	SJR-26-A	Tooth and rack	
Gilde	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S*	Single	.....	Willard	SLB-68	Adj. screw	
Grant	6-8	15	6-8	4H	6-8	2	6-8	2	20	*	Single	Resist.	Willard	Sq. 6-80	Adj. socket	*Dash lamp Ediswan D.
HAL	6-8	18	.....	.....	6-8	2	6-8	4	15	Ediswan S*	.....	.....	Gould	.....	Adj. screw	*Headlamps double, tail and dash single.
Harroun	6-8	15	6-8	12H	6-8	2	6-8	2	5	Ediswan D.	Double	Series	Willard	L.B.A.	Adj. screw	*Dash Ediswan D.
Haynes	6-8	15	6-8	2H	6-8	2	6-8	2	.....	Ediswan S*	Single	.....	.....	.....	.....
Howard	6-8	15	6-8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hudson	6-8	15	.....	.....	3-4	2	3-4	2	.....	Ediswan S.	Single	Resist.	Exide	.....	.....	*Dash lamp Ediswan D.
Hupmobile	6-8	15	6-8	4	6-8	4	6-8	4	15	Ediswan S.	Single	Resist.	Willard	LBA-66	.....
Inter-State	6-8	15	.....	.....	6-8	2	6-8	2	10	Ediswan S.	Single	Resist.	Willard	LBA5-6	Adj. bulb	
Jackson	6-8	15	.....	.....	6-8	2	6-8	2	20	Ediswan D.	Single	.....	Willard	SC304	Adj. socket	
Jeffery	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	.....	.....	U.S.L.	C313-B	.....
Jordan	6-8	18	6-8	4H	6-8	2	6-8	2	20	Ediswan S.	Single	.....	Willard	LBA6-6	Adj. bulb	

NOTE—Where headlamps have small bulbs for side lamps the candlepower is followed by the letter H. ABBREVIATIONS—Type of Socket: Ediswan single contact, Ediswan S; Ediswan double contact, Ediswan D; Circuit breaker, C.B.; Dimmer. Resistance, Resist; Series connection, Series.

Used on the Principal Cars for 1917

Car	HEAD LAMPS		SIDE LAMPS		TAIL LAMP		DASH LAMP		Fuses Amp.	Socket	Wiring System	Type of Dimmer	Make of Battery	Style of Battery	Method of Focusing	Remarks
	Volt	Cp.	Volt	Cp.	Volt	Cp.	Volt	Cp.								
King	6-8	18	6-8	4H	6-8	2	6-8	2	10	Ediswan S.	Single	Series	Willard.	SC-304	Adj. bulb.	*Dash lamp.
Kissel	6-8	18	....	....	6-8	2	6-8	2	20	Ediswan D*	Single	....	Willard.	LBA 6-6	....	single
Kline	6-8	15	6-8	4H	6-8	4	6-8	4	15*	Ediswan S.	Single	....	Willard.	SP 4	Adj. bulb.	*Fuses 5 amp.
Lewis	6-8	15	....	....	3-4	2	3-4	2	....	Ediswan D.	Single*	Resist.	Exide	....	....	in all but headlamps
Lexington	6-8	21	6-8	8H	6-8	4	6-8	4	15	Ediswan S*	Single	....	Willard.	LBA5-6A	Adj. mounting	*On 176 model on 178 single and double
Liberty	6-8	15	....	H	6-8	2	6-8	2	....	Ediswan S.	Single	....	Willard.	SP-4	....	*Dash lamp
Locomobile	6-8	21	6-8	6	6-8	4	6-8	2	10	Ediswan S.	Single	Resist.	Willard.	SSB612	Adj. screw.	Ediswan D.
McFarlan	6-8	24	6-8	12H	6-8	2	6-8	2	10	Ediswan S*	Single	Series	Willard.	SJR-5	Adj. screw	*Dash lamp
Madison	6-8	15	6-8	6H	6-8	4	6-8	4	....	Ediswan S.	Single	....	Willard.	LBA6-6	....	Ediswan D
Marion A	6-8	18	6-8	4	6-8	2	6-8	2	30	Ediswan S.	....	....	Willard.	SLB-68	Spring	....
Marion B	6-8	21	6-8	4	6-8	2	6-8	2	30	Ediswan S.	....	....	Willard.	SLB-68	Spring	....
Marmon	12-16	24	12-16	8H	12-16	4	12-16	4	20	Ediswan S.	Single	....	Willard*	SLB-125	Adj. bulb.	*Also Prest-O-Lite
Maxwell	6-8	15	....	....	6-8	2	6-8	2	20	Ediswan S.	....	Resist.	Prest-O-Lite	127WM	Adj. screw.	....
Mercer	12-16	24	12-16	4	12-16	4	12-16	4	10	Ediswan S.	Single	Warner	U.S.L.	CD611-B	Sliding socket	....
Metz	6-8	15	6-8	4H	6-8	2	6-8	2	50	Ediswan D.	Single	Shad. rays	Willard.	SJW-3	....	....
Mitchell	6-8	15	....	....	6-8	2	6-8	2	15-20	Ediswan D.	Single	Series	Willard.	LBA-6-6	Adj. socket	....
Moline	6-8	15	6-8	6H	6-8	2	6-8	4	20	Ediswan S.	Single	Deflect.	U.S.L.	CD313-C	Adj. screw.	*Dash lamp
Knight	6-8	15	6-8	2H	6-8	2	6-8	2	....	Ediswan S.	Single	....	U.S.L.	CD311-C	Adj. bulb.	Ediswan D.
Monroe	6-8	15	....	....	6-8	2	6-8	4	C.B.	Ediswan S*	Single	....	Willard.	SP-4	....	*Dash and tail
Moon	6-8	15	....	....	6-8	2	6-8	2	15†	Ediswan D*	....	....	Willard.	SSB610A	Adj. bulb.	Ediswan S.
Murray	6-8	18	6-8	4H	6-8	2	6-8	2	....	Ediswan S*	....	....	Willard.	SLB 612	....	†Fuses 5 amp. in dimmer.
National	6-8	18	6-8	4H	6-8	2	6-8	2	....	Ediswan S*	....	....	Willard.	611 RH	Adj. screw.	*Dash lamp
Oakland	6-8	12	....	....	6-8	2	6-8	2	C.B.	Ediswan S*	Single	Resist.	Prest-O-Lite	611 RH	Adj. screw.	double
Open	6-8	12	6-8	6	6-8	6	6-8	6	....	Ediswan S.	Single	Deflec.	Willard.	3-x-c-13-1	Adj. screw.	*Dash lamp
Oldsmobile	6-8	15	6-8	4H	6-8	2	6-8	2	....	Ediswan S*	Single	....	Exide	LBA 5-6	Adj. bulb.	Ediswan D.
Overland	6-8	15	6-8	4H	3-4	2	3-4	2	....	Ediswan D.	....	....	U.S.L.	CD311-C	LB 68	*Also Prest-O-Lite
Owen O-24	28	21	28	4H	28	2	28	2	10	Ediswan D.	Double	....	Willard.	SE-576-148	Adj. socket	*Headlamps
M-25	14	21	14	4H	14	2	14	2	10	Ediswan D*	....	....	Exide	....	....	Ediswan S
Paisie-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	20	Ediswan S*	Single	....	Willard.	LBA6-6	Adj. screw.	*Dash lamp
Patterson	6-8	12	6-8	8H	....	....	....	....	....	....	....	....	Willard.	LBA 5-6	....	Ediswan D.
Packard	6-8	24	6-8	6H	6-8	2	6-8	2	10	Ediswan D.	Double	....	Willard.	PSLB 612	Adj. screw.	....
Pathfinder	6-8	15	6-8	4H	6-8	2	6-8	2	....	Ediswan S.	Single	Warner	Willard.	SLB612A	Adj. screw.	....
Peerless	6-8	15	6-8	4	6-8	2	6-8	2	10	Ediswan S.	Single	....	Willard.	SC 306	Adj. screw.	....
Phlanna	6-8	24	6-8	4H	6-8	2	6-8	4	....	Ediswan D.	Double	....	Willard.	SJR-4	Adj. bulb.	....
Pierce-Arrow	6-8	21	6-8	4	6-8	4	6-8	4	10	*Ediswan S	Single	Sutterly	Willard.	SJR-6	....	....
Pilot	6-8	15	....	....	6-8	2	6-8	2	....	Ediswan S.	Single	Resist.	Willard.	3xc-19-1	Adj. socket	....
Porter	12-16	25	12-16	6	12-16	3	12-16	3	6-3	Ediswan S.	Single	....	Willard.	LBA 5-6	Adj. bulb.	*Dash lamp
Premier	6-8	21	6-8	4H	6-8	2	6-8	2	C.B.	Ediswan S*	Single	....	Willard.	SLB 125	Adj. bulb.	double
Pullman	6-8	15	6-8	4H	6-8	2	6-8	2	15	Ediswan S.	Single	....	Prest-O-Lite	611R	....	....
Regal	6-8	21	....	....	6-8	4	6-8	2	....	Ediswan S.	Single	Resist.	U.S.L.	CD311-C	Adj. bulb.	....
Roe	6-8	15	....	....	3-4	2	3-4	2	5	Ediswan D.	Double	Series	Willard.	LBA 66	Adj. socket	....
Ross	6-8	15	....	....	6-8	4	....	....	....	Ediswan D.	....	....	U.S.L.	CD311-F	....	....
Saginaw	6-8	15	....	....	3-4	2	3-4	2	....	Ediswan S.	Single	Series	Willard.	LBA 7-6	....	*Dash lamp
Saxon	6-8	12	....	....	6-8	2	6-8	2	15	Ediswan S*	Single	Resist.	Exide	....	....	Ediswan D.
Scripps-Booth	6-8	15	6-8	4H	6-8	2	6-8	2	....	Ediswan S.	Single	Series	Willard.	SC 304	....	....
Simplex	12-16	40	12-16	4H	6-8	2	6-8	2	10	Ediswan S*	Single	....	Prest-O-Lite	611 R	....	*Tail lamp double
Singer	6-8	15	....	....	6-8	2	6-8	2	5	Ediswan S.	Single	....	Gould	....	Adj. bulb.	....
Sphinx	6-8	12	6-8	4H	6-8	4	....	....	25	Ediswan S*	Single	....	Willard.	SJR4	....	*Tail lamp double
Standard	6-8	18	6-8	4	6-8	2	6-8	2	15	Ediswan S.	Single	Series	Willard.	SLB 6-10	....	....
Stanley	6-8	18	6-8	4H	6-8	2	6-8	2	....	Ediswan D.	Double	Warner	Willard.	ELB 68	....	....
Stearns SK8	12-16	24	12-16	4H	12-16	2	12-16	2	20	Ediswan S.	Single	....	Willard.	LBA 6-12	Adj. screw.	....
SKL-4	12-16	18	12-16	4H	12-16	2	12-16	2	20	Ediswan S.	Single	....	U.S.L.	CD609-A	Adj. screw.	*Dash lamp
Stephens	6-8	21	6-8	4	3-4	2	3-4	2	20	Ediswan S*	Single	....	Willard.	SJW-3	Adj. bulb.	double
Sterling	12-16	15	12-16	4	12-16	2	12-16	2	....	Ediswan S.	Single	....	Willard.	SJW-26	....	....
Studebaker	6-8	12	....	....	6-8	2	6-8	2	10	Ediswan S.	Single	Resist.	Willard.	SL-4	Adj. bulb.	....
Stuts	6-8	21	6-8	4H	6-8	2	6-8	2	....	Ediswan D.	Double	....	Willard*	LBA612	....	*Also Prest-O-Lite
Sun	6-8	18	....	....	6-8	2	6-8	2	20	Ediswan S.	Single	Resist.	Willard*	SLB68	Adj. bulb.	*Also Prest-O-Lite
Vellie	6-8	15	6-8	4	3-4	2	3-4	2	5	Ediswan S*	Single	....	Willard.	LBA 56	External adj.	*Dash lamp
Westcott	6-8	15	6-8	4H	3-4	2	3-4	2	....	Ediswan S*	Single	....	Willard.	LBA 6-6	Friction stem	*Dash lamp
White	12-16	25	12-16	4H	12-16	4	12-16	4	C.B.	Ediswan D.	Double	Warner	Exide	....	....	....
Willys-Knight	6-8	16	....	....	3-4	2	3-4	2	....	Ediswan D*	Single	Series	Willard.	S x 28	....	*Tail lamp
Winton	6-8	21	6-8	8	6-8	4	6-8	2	15	Ediswan S.	Single	....	Willard.	CD313C	Adj. screw.	Ediswan S.
Woods	60	25	30	8	30	10	30	10	10	Ediswan D.	Double	....	Woods.	SSB 610	Adj. screw.	....

NOTE—Where headlamps have small bulbs for side lamps the candlepower is followed by the letter H. ABBREVIATIONS—Type of Socket: Ediswan single contact, Ediswan S; Ediswan double contact, Ediswan D; Circuit breaker, C.B.; Dimmer. Resistance, Resist; Series connection, Series.



The camera was not fast enough to catch the cars in this picture, but it shows the appearance of the grandstand and the great crowd in it and lining the inside of the track

fire on the back stretch and burned up, causing a great flutter among the bleacherites, particularly when seven minutes after it caught fire the gasoline tank exploded in a volcano of flame. The driver and his mechanic escaped by jumping. Andy Burt, driving the Erbs special, distinguished himself by slowing up to throw a fire extinguisher to the fire fighters.

Louis Chevrolet ran the most consistent race for the entire 250 miles, never making a stop, and the \$10,000 prize of the \$25,000 purse divided among the ten first finishers was well earned.

The Chevrolet brothers showed great team work, Gaston keeping very close to Louis all the way. Ira Vail came up a long way from the rear to win second position and piloted his Hudson like a general.

When the twenty-eight starters completed the first lap after their preliminary starting lap they were running in the following order: 1—Joe Thomas in a Mercer special; 2—Eddie Hearne, Duesenberg; 3—Ralph De Palma, Packard. By the end of this lap De Palma had jumped to the lead, followed by Oldfield. In the next lap De Palma was still leading, but Louis Fontaine in a Mercedes had passed De Palma.

Lewis in the Hoskins was the first to stop at the pits, coming in on the tenth mile. In another 4 miles Fontaine came in for the first of his many tires, and from then on did not figure.

At the end of the first 10 miles De Palma was leading at a speed of 98.36 m.p.h. LeCain was forced to dock his

Delage with a broken valve before 10 miles had been covered.

At the twentieth mile De Palma was leading the procession, with Louis Chevrolet a close second and Haines in a Mercer special third. At 30 miles De Palma was averaging 99.91 m.p.h. Chevrolet took the lead at 40 miles, with De Palma second, the speed having dropped to 99.96. At 50 miles the order was the same, with Chevrolet doing better than 100 m.p.h.

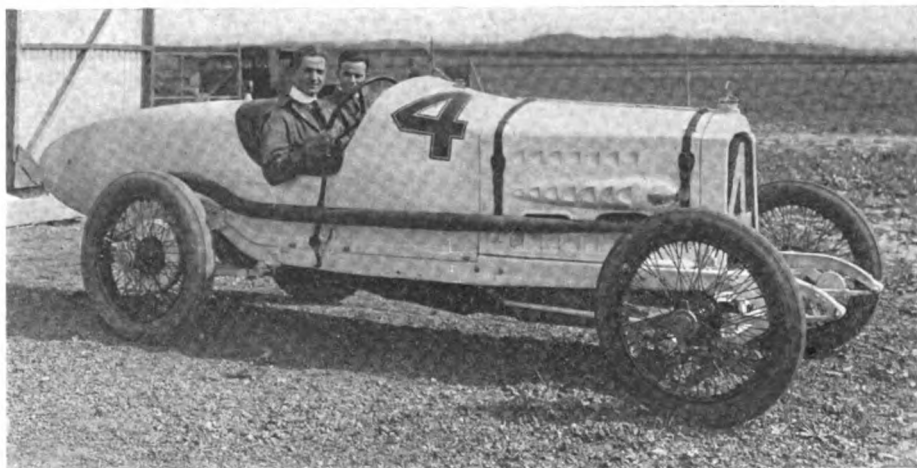
Oldfield was pushing De Palma very close for second and passed him shortly after. At the 70-mile post the two Chevrolet brothers were leading the field at 100.79 m.p.h. De Palma again assumed

the lead at the 120th mile, with Louis Chevrolet a close second. The time was better than 101 m.p.h.

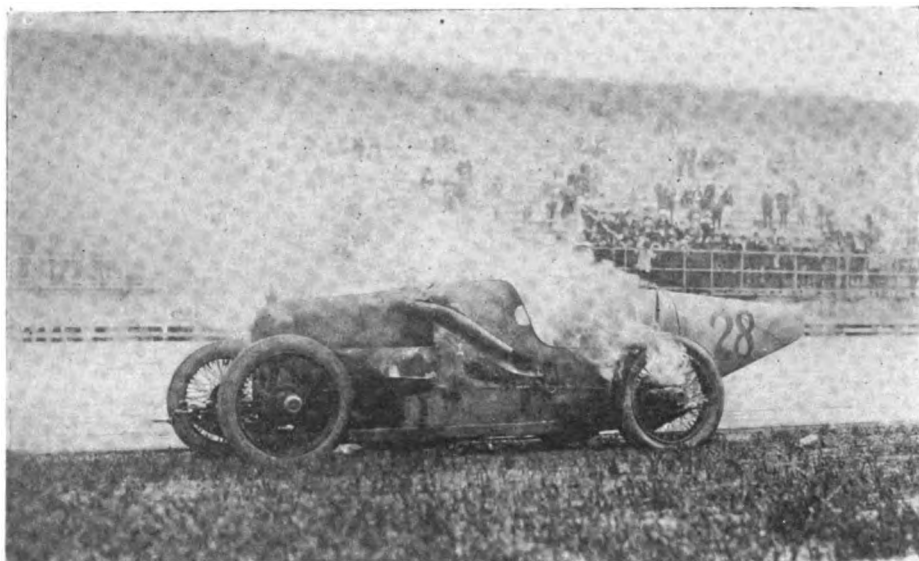
De Palma held this lead until 150 miles had been covered, when he retired. This left the two Chevrolet brothers as the headliners up to the 230th mile.

During this time there had been a number of retirements from the race, one of them being the second Delage driven by DeVigne, who retired with a cracked cylinder.

At about 220 miles Gaston Chevrolet took the lead, to be shortly passed by Vail in front of the grandstand. By the end of 230 miles, however, Gaston



Here is the Packard Twin-Six with which Ralph De Palma led the field for 150 miles, then a splinter from the track punctured his radiator and put him out



What a racing car on fire looks like. This is the Ostewig Special, which caught fire. A few minutes later the gasoline tank went up

had taken the lead away from Vail and Louis Chevrolet had also passed the Hudson, so that the two brothers were making a team of it for first and second, though in reverse order. Gaston, however, slowed up at the pits and his brother showed the way for the rest of the distance.

Gaston Chevrolet was almost put out of the race at the 140th mile, when a tread wore off the back tire and wrapped around the brake. The car whirled around and banged into the wall on a turn and the exhaust pipe was loosened. Gaston slowed down at the pit, thinking that he would have to change tires, but as the race was nearly over he was signalled to keep going.

Vail slowed up at the pit at the same time that Gaston Chevrolet came in, but lost little time and passed Gaston for second in the last 10 miles. The finish at 250 miles was very close, only a minute and ten seconds separating first and second, and less than a minute between second and third.

Oldfield, the dean of the speed merchants, was up among the first ten most of the time, but did not finish in the money, checking in eleventh at the checkered flag.

There were three of the Chevrolet boys at the track. Louis, who was the winner, is the oldest. Arthur Chevrolet is married and no longer drives. Gaston, the youngest of the brothers, is under 30 years of age. The third Frontenac was driven by Kirkpatrick, who took the place of Joe Boyer, Jr., the young Detroit millionaire, who is backing the Chevrolet. Boyer was hurt in a motor car accident at Detroit last week.

Louis Chevrolet, who won the Cincinnati race, is a veteran in motor racing. He is of Swiss-French birth and has been in America for 15 years. His first mount was Fiat, in which he broke dirt-track records and challenged Oldfield when Barney was in his prime. In 1909 Chevrolet was picked by Pickens to put

the Buick cars on the map in racing, and Buick cleaned up the season that year, winning the Cobe trophy, Chicago's classic at Crown Point at that time. His last victory was the Universal trophy event at Uniontown, Pa. Chevrolet builds his own racing cars, the Frontenac.

The Frontenac cars are examples of the extensive use of aluminum. The motor is almost wholly aluminum alloy, the particular alloy being Lynite, which weighs approximately one-third as much as cast iron. This includes cylinder block, clutch, housing, engine base, etc. The whole power plant, including engine, flywheel, clutch, exhaust and starting crank, weighs only 490 lbs., while the entire car tips the beam at a trifle less than 1600 lbs., or about 300 lbs. less than the weight of any other car in the race. The Frontenac was built by Chevrolet on the idea that most racing cars were much heavier than they needed to be,

and he believed that he could combine lightness and speed. This is the same car that Chevrolet used at Uniontown when he won the Universal trophy, and it seems he has succeeded in the low-weight speed combination.

Mechanical Weaknesses Were Few

THE most prominent feature of the record of the technical work done at the pits is the fact that no marked mechanical weakness was disclosed by any of the cars. In previous races the cars have failed from broken connecting-rods, burned-out bearings, and faults of a similar nature to a marked extent, while in this race only one car went out on account of a broken rod, and only one with a burned-out bearing.

The matter of tire changes is always one of important interest. These also were few considering the twenty-seven starters. There were ten tire changes in all, and of these, four were made by one car, the Mercedes driven by Louis Fontaine. The only other car to have more than one tire change was the Stutz driven by Earl Cooper, which made two changes. Four other cars changed tires once. These were the Hoskins driven by Dave Lewis, the Newman Special driven by W. E. Taylor, the Johnson Special driven by Wilbur Monahan, and the Duesenberg Special driven by Eddie Hearne.

The greatest misfortune of the entire race was the peculiar accident which happened to Ralph DePalma. His Packard twelve-cylinder engine was running perfectly and he was in the lead, with an excellent chance of winning, when a splinter from the board track was driven against his radiator with sufficient impact to penetrate it and cause a leak which could not be remedied. He was thus forced to withdraw.

Another misfortune which narrowly



Here is Mel Stringer's M.E.L., which turned over in the backstretch after a steering knuckle broke and the car plowed up the infield

Details of Specifications and Equipment of Cars in 250-Mile Cincinnati Race

Car	Driver	Bore	Stroke	Displ.	Ignited	Carburetor	Oil	Plugs	Tires	Wheels	Shock Absorber
Crawford Spec.	H. E. McCord	3.75	6.75	298.2	Boech	Miller	Mobiloil	Rajah	Goodyear	Rudge	Hartford
Crawford Spec.	C. M. Ewan	3.75	6.75	298.2	Boech	Miller	Mobiloil	Rajah	Goodyear	Rudge	Hartford
Oldfield-Delage.	Barney Oldfield	3.635	7.00	299.0	Boech	Miller	Oilsum	A C	Firestone	Rudge	Hartford
Frontenac	Louis Chevrolet	3.87	6.37	298.0	Boech	Miller	Oilsum	K. L. G.	Goodyear	Rudge	Hartford
Frontenac	Louis Chevrolet	3.87	6.37	298.0	Boech	Miller	Oilsum	Champion	Goodyear	Rudge	Hartford
Stutz Spec.	Earl Cooper	3.828	6.50	295.0	Boech	Miller	Aristo	Rajah	Goodyear	Rudge	Hartford
Ostewig Spec.	S. Ostewig	4.339	5.00	293.0	Boech	Miller	Oilsum	Rajah	Silvertown	Houk	Hartford
Delage	Jack LeCain	3.769	6.00	280.0	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Delage	Jules Devigne	3.780	6.00	280.0	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Omar Spec.	Omar Toft	3.750	6.750	298.2	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Duesenberg Spec.	Eddie Hearne	3.750	6.750	298.2	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Packard	Ralph DePalma	2.625	5.000	299.0	Delco	Zenith	Monogram	K. L. G.	Goodyear	Rudge	Hartford
Detroit Spec.	George Buzane	3.824	6.50	283.0	Boech	Miller	Monogram	Grossman Spec.	Goodyear	Rudge	Monder
Mercedes	Louis Fontaine	3.70	6.50	278.0	Boech	Mercedes	Monogram	Grossman Spec.	Goodyear	Rudge	Monder
Hudson Super-6	Ralph Mulford	3.503	5.00	288.6	Delco	Hudson	Oilsum	A. C.	Goodyear	Rudge	Hartford
Hudson Super-6	Ira Vail	3.522	5.00	290.0	Delco	Hudson	Oilsum	A. C.	Goodyear	Rudge	Hartford
Hudson Super-6	A. H. Patterson	3.502	5.00	288.6	Delco	Hudson	Oilsum	A. C.	Goodyear	Rudge	Hartford
Mercer Spec.	W. S. Haines	3.872	6.375	300.7	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Mercer Spec.	Jos. Thomas	3.872	6.375	300.7	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Mercer Spec.	Pete Henderson	3.872	6.375	300.7	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Newman Spec.	W. E. Taylor	3.813	6.50	295.0	Boech	Miller	Oilsum	K. L. G.	Goodyear	Rudge	Hartford
M. E. L. Spec.	Mel Stringer	3.977	6.00	296.0	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Erbes Spec.	Andy Burt	3.638	7.125	295.0	Boech	Miller	Oilsum	K. L. G.	Silvertown	Rudge	Erbes
Duesenberg	Tom Milton	3.75	6.75	298.2	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Hoskins Spec.	Dave Lewis	3.75	6.75	298.2	Boech	Miller	Oilsum	Rajah	Goodyear	Rudge	Hartford
Johnson Spec.	W. Monahan	3.750	6.75	298.2	Boech	Miller	Mobiloil	Rajah	Silvertown	Rudge	Hartford
Ogren	Otto Henning and Jerry Mason	3.656	7.00	292.0	Boech	Miller	Oilsum	Rajah	Goodyear	Houk	Hartford

All cars in the race were equipped with Boyce Moto-Meters.

escaped proving fatal was that which befell Mel. Stringer in the M. E. L. Special, which broke a steering knuckle on the back stretch and turned over.

Another of the troubles which generally disturbed the racing drivers but which were infrequent on this occasion, was the matter of shorted spark plugs. Only two changes of plugs are recorded. These were made by Earl Cooper in the Stutz Special and Chevrolet in one of the Frontenacs.

That spark plug trouble has largely been eliminated is due to the fact that better locations have been found for the plugs, and by the fact that the oiling regulation has been greatly improved. In fact, the only oil trouble that was noticed was due to constructive failures rather than to any malfunctioning of the oiling system. Haines' Mercer had trouble with a broken oil line, and this put him out of the race, while Monahan's Johnson Special had a leaky oil pan which caused him to come in for a fresh supply of lubricant six times during the race.

As regards gasoline consumption, some of the cars averaged quite close to 10 miles per gallon. The Hudsons, which have a 29.5 gal. main supply tank, ran the whole distance of 250 miles on this supply.

The pit work was quite good in spite of the fact that many of the pit hands were new. Some of the tire changes were made in 20 sec., and none of them took over 40 sec. The changes of plugs were also made in very quick time. Practically every stop at the pits, however, was of a very minor nature and only in the cases where cars were put out of the race altogether were the causes serious enough to require any great amount of mechanical work.

Summing up the situation, it may be said that the cars ran much more steadily and at a more even pace than is usual in races of this length. It was evident from the running of the race that it was believed that a speed of 100 m.p.h. would win, and a number of the pit managers set out to take the race on this basis.

The fact that the leaders forced a higher pace than this gave rise to the unusual occurrence that the average speed of the race increased as time went on instead of dropping off as is usual. It was gradually learned that it took more than 100 m.p.h. average to win the race, but even this hot pace did not cause any great increase in the number of pit stops, and the accompanying table will show the trivial nature of most of the stops.

Equipment of the Winners

CINCINNATI, OHIO, May 30—In the non-stock car race, which was closely contested by Hudson and Paige, and finally won by the Hudson, the winner was equipped with the standard Delco ignition, two Hudson carburetors, A. C. spark plugs, Oilsum oil, Goodyear tires, and Rudge-Whitworth wheels. It had a special camshaft design to give an increased lift of .024 in. to the valves.

The Paige, which came in second, was equipped with a Dixie magneto, Rajah spark plugs, Goodyear tires, and also had

the standard block bored out for larger valves, with a new camshaft.

In the Ford race, the four leading cars were fitted with the Peugeot type head, manufactured by R. M. Roof, Anderson, Ind. The winning Ford had a Splitdorf magneto with Splitdorf plugs, Master carburetor, and 2 3/4 to 1 rear axle. It also had A. C. brakes.

The second Ford also had a Splitdorf magneto with A. C. brakes and Roof's Peugeot type of head.

The following drivers used Graphite lubrication in their cars in the sweep-stake: Louis Chevrolet, Frontenac; Gaston Chevrolet, Frontenac; Tom Milton, Duesenberg; Eddie Hearne, Duesenberg; Earl Cooper, Stutz; Otto Henning, Ogren; Omar Toft, Omar; Barney Oldfield, Oldfield-Delage.

Liberty Bonds for Prizes

DETROIT, June 4—The Maxwell Motor Car Co., Inc., will give \$50,000 in United States Liberty Bonds to owners and dealers in a 1-gal. gasoline economy test to be held June 16 to 25. The company expects an entry list of 40,000 cars.

Those Who Stopped and Why

Car	Driver	Stops
Mercedes.	Louis Fontaine	4 for tires. Broken connecting-rod. (Out). Carburetor.
Detroit Spec.	Geo. Buzane	Valve spring retainer. Radiator cap. Broken clutch. (Out). Punctured radiator. (Out).
Packard.	Ralph DePalma	2 for tires.
Stutz Spec.	Earl Cooper	Spark plugs. Burned-out bearing. (Out). Broken gasoline line.
Mercer Spec.	Pete Henderson	Water in magneto. Spark plugs. Broken valve. (Out).
Frontenac.	Jos. Boyer, Jr.	Tires and gasoline. Carburetor.
Hoskins.	Dave Lewis	Oil, gasoline and water. Cracked cylinder. (Out).
Delage	Jules DeVigne	Tire.
Newman Spec.	W. E. Taylor	Broken oil line. (Out).
Mercer Spec.	W. S. Haines	Broken valve plunger. (Out).
Delage.	Jack LeCain	Sticking float.
Crawford Spec.	S. Ostewig	Burned up. (Out).
Ostewig Spec.	Omar Toft	Broken gasoline line.
Omar Spec.	Mel Stringer	Broken steering knuckle. (Out).
M. E. L. Spec.	Wilbur Monahan	5 for oil. Tire.
Johnson Spec.	Eddie Hearne	Tire.
Duesenberg Spec.		

A Department of BETTER MECHANICS

No. 26

Carbon Removal by Oxygen Process

BY many, the oxygen process of removing carbon is supposed to be dangerous, both to handle and to the engine. It is neither, if the precautions of the tank maker are followed in handling the tank and the following points are observed in burning the carbon:

- 1—Turn off the gasoline.
- 2—Drain the carbureter. Try to operate the engine. If there is fuel enough to start it, let it run until it is exhausted.
- 3—Remove the spark plugs for cleaning and to prevent injury due to the heat.
- 4—Remove the valve caps.
- 5—Crank the engine by hand until the piston of No. 1 cylinder is on center, and both valves are closed. It is only absolutely necessary to have the intake valve closed, to assure no flame getting into the intake manifold. Having both valves closed on the cylinder being burned is the best practice.
- 6—Pack a damp piece of carpet, or rug around the wiring, and around all parts that might be damaged by the burning carbon, Fig. 1. A piece of tin is often used, being shaped to catch the flame, and throw it away from the wiring and hood. The damp carpet is best, as it may be fitted over all parts of the engine, and thoroughly protects them.

7—Drop a lighted match into No. 1 cylinder.

8—Turn on the gas tank, and insert the tip of the torch into the cylinder. The gas pressure on the gage should register from 15 to 20 lb. when the torch is in operation.

9—The carbon will start to burn immediately. Following the burning carbon with the point of the torch, working it all over the inside of the combustion chamber, practically all the carbon can be removed. Turn off the gas, and remove the torch when the flame dies.

10—Using the scraping tool shown in Fig. 2, scrape the inside of the cylinder, loosening and roughing up all remaining deposits of carbon.

11—Again drop a lighted match in the cylinder, and burn the balance of the carbon out.

This scraping and secondary burning is ordinarily not done. As it takes but little additional time, and assures the removal of all of the carbon, it should always be done.

Some good mechanics complain that it is impossible to obtain a clean job by burning. However, the trouble is due to improper method. There is a tendency for the flame to burn away the carbon in spots with the result that after a while there are a few islands of carbon

in an otherwise clean cylinder. The flame cannot jump from one of these to another and goes out.

There are several simple remedies. One is to wet the interior surface with kerosene or cylinder oil so that there will be a film of fuel to connect the different carbon spots. In some cases it might be necessary to repeat this process.

Another method is to use a small city gas pilot light on the oxygen tip. A copper pipe about $\frac{1}{4}$ in. in diameter is twined around the oxygen pipe and enough gas is supplied to it to give a flame about $\frac{1}{4}$ in. long. An equally good method, similar in principle but differing in detail is to ground one end of a circuit composed of a set of dry cells and a make and break coil on the oxygen burner and ground the other end on the frame of the car. There should be a switch in the circuit. Thus when the switch is closed and the burner is brought into contact with the cylinder wall, and drawn away, a spark is produced. Whenever the flame goes out, it may quickly be lighted by this arrangement.

12—Put a few drops of cylinder oil onto the top of the piston, close as possible to the cylinder walls. The heat of the burning carbon dries the original oil, and the piston may score before more oil can get up from the crankcase, unless this is done.

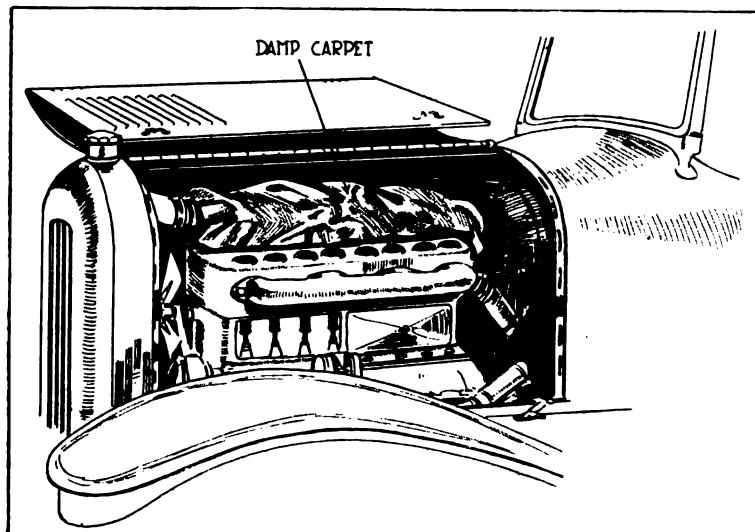


Fig. 1—Method of placing a damp carpet over the top of the engine to protect the wiring, spark plugs and rubber hose connections

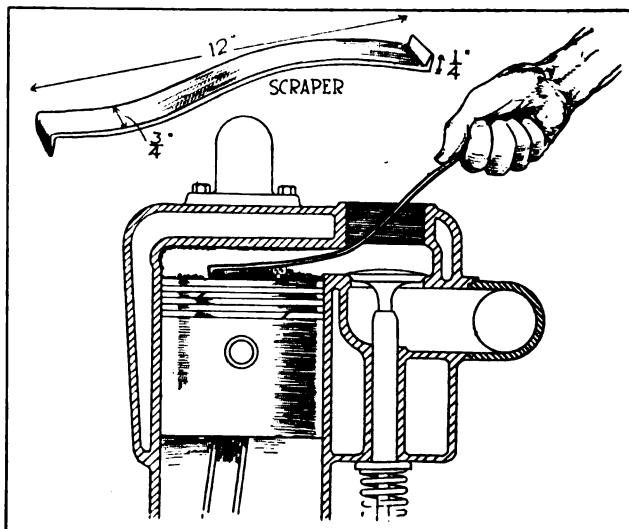


Fig. 2—A scraping tool should be used to loosen carbon remaining after the first burning

This is the second of a series of articles which will explain the business side of the great war. Business will be good but it will be different; it will require certain changes in every organization. This series will explain what these changes may be

Your Business Is War

Overnight You Have Become Something Different and Your Business Is Undergoing an Even Greater Change

THE sign over your door may say "motor cars"; you may be carried on the payroll as "salesman," or "mechanic," or something else. But the old name doesn't tell the whole story to-day—for YOUR business is war.

It may be hard for you to feel that there has been this change, but the change has nevertheless come. Two months ago you were only a dealer, a salesman, a garage-man, a mechanic; to-day you are engaged in the BUSINESS OF WAR.

You may have done absolutely nothing of a warlike nature as yet—but you will, for your business is war. A great nation has gone into

combat, and all there is to the "great nation" is resources and a hundred millions of people—and this hundred million is nothing but 99,999,999 human beings—and YOU. YOU and the others are what is at war.

If you haven't done anything yet it means that you have been letting these others do YOUR part. That's hardly fair, is it?

Therefore, let us, like business men, give attention to our business—which is WAR. Let us go at this grim job in a businesslike way. Let us play OUR part and make the hundred millions highly efficient in the business of war.

Business is an occupation that requires

- 1—Energy.
- 2—Time.
- 3—Thought.

Therefore, let us give energy, time and thought to this war business.

Our whole national machinery has been readjusted to the business of war, the capital has changed from an easy-going city of shaded avenues to a humming industrial metropolis, the great men of the mills and railroads and factories have left their

and learn what substitutions are possible—because you will have to make them if the war lasts 3 to 5 years.

Pattern after what the Government has done. Read carefully the following address of Secretary William C. Redfield of the Department of

Commerce and Labor. Get busy with your energy, time and thought in this YOUR great business of war:

Secretary Redfield's Address

I hope none of you thinks that this war into which we have entered is going to be either short or cheap or bloodless, or that we are facing an exhausted enemy; that is not the way we feel here about it. The spirit in which we

THE expression "business as usual" is a misnomer. When conditions change, business must change, and conditions to-day are changing. It never did anyone any good to ignore facts and any attempt to foresee business as usual is simply ignoring the actual facts before us.

Business is changing and will of necessity change a good deal. It must become better. Everyone will be obliged to get more money out of the dollar by making it work harder. We will be obliged to improve business operation, reduce waste, and analyze all its methods with a view to constructing a more stable and stronger organization, but this does not mean that there need be any lack of confidence on the part of the manufacturer or strong business man.

It means a more vigorous discrimination between the efficient and the inefficient, between the valuable and the wasteful, between the essential and the non-essential. When the wasteful things are eliminated or reduced, the useful and efficient become more stable and more valuable.

desks and given themselves to their country, and business of every kind is becoming the business of war.

Devote YOUR energy, time and thought to getting the most out of everything. Don't waste. Develop wasting resources. That's what the Government is doing and it is what YOU should do in your business of war. Secretary Redfield says a great good that will come from this war is that America will have learned to use her wits. She is learning now. She is finding foods in hitherto uncultivated fish. She has found dyes in wild shrubbery, potash in a hitherto accursed seaweed and from everywhere her arms are reaching out and picking wealth and food from what before had been waste.

Look around you and see what YOU can do. Inspect your business for wastes and possible economies. Canvass your home food schedule

look at it is as if we stood alone against our antagonist at his best. No other way is safe; from our point of view, no other way is possible.

Now, that means, gentlemen, sacrifices for us all. Ten cabinet boys are on the job now, in either the army or navy; we have tried to do our share. It means that we have got to pay taxes; we have got to take up loans—not one—nor two—nor three—nor four, perhaps—please do not feel as if \$2,000,000,000 was a very enormous contribution toward this job. It may be only the beginning; it is certainly only the beginning, so far as we can now foresee. Do not let us treat it as if that would put an end to it.

Seven thousand million is a big sum, but it may have to come once—and again. Let us hope it may not have to come a third time.

Two millions of men are a good many, but they may not be enough; there may be more. All that I am saying this for is to have you gentlemen feel and to teach that this is a serious job—a job which is going to take courage and brawn, but we have got to clean it up, once and for all, and make it safe to be a free people.

I do hope that we will all come to look about us and see what we have got that we can use, and then use it.

Finding New Foods

The amazing thing about the United States is that, for an alert people, we let things of the largest importance go by unseen. There are many—probably dozens of perfectly good food articles which, at a time of very high prices, we allow to go unused. I say “perfectly good food articles,” meaning those which are used abroad in other countries by millions of pounds—sometimes by millions of tons, but which, being available for the taking, we, for some strange reason, do not take.

That particular work the Bureau of Fisheries about two years ago took up, and with success which is astonishing, considering the length of time they have devoted to it, and the cost, which is ridiculously small.

None of you, for example, I think, ever heard of the tile fish up to October a year ago. It is now selling over a million pounds a month right straight along—and one of the very best of food fishes, and to be had in almost unlimited quantity.

The fishermen on a portion of our Atlantic Coast in each of the last two winters, at a time when they otherwise would have been idle, have taken in over a quarter of a million dollars earnings for the fishermen themselves on the boats in this entirely new fishery.

The grey fish, which we started by a small appropriation in August of last year, is now selling in thirty States, and the packers are wholly unable to supply the demand.

Since then we have introduced the burbot, a lake fish, which is eaten all over the world, except in the United States, and which abounds by the ton; and the bowfin, which exists here, and which can be picked out of most any large stream in the West, and that is coming along too.

Fish on the Farms

Now, there is no limit to that; it can go on indefinitely. I think we could supply any one of our big cities with an abundance of fish food from the waters near at hand, where there are such waters, such foods being those which are now entirely unused, simply because they are not used.

Furthermore, it is quite possible to make an acre of water on the farm equal in value to an acre of land, in food; and we are deliberately in that business of furnishing to farmers who will provide an acre of water.

There is no reason why every farmer who has an acre of water should not have

a continuous supply of fish for his table right along; it is perfectly feasible, and we will do it for him, if he will give us the chance.

Making Optical Glass

About two and a half years ago we commenced the study of optical glass. I think I may say that it took almost a year to determine what particular kind of composition was necessary for the pot in which the glass was to be made; that it then took almost a year to determine what particular kind of mixture was necessary for the glass itself; that it took many months more to learn the technique of that process, of making the glass itself, for there were in this country none or almost non-trained men. However, we have it now; we are making it now, as good as the best, and we are rapidly adding to our manufacturing equipment.

Uncle Sam, without any fuss and feathers, is actually producing the article, and it is a very vital article for the successful operation of the army and navy.

It would be quite possible for me to go on and tell you of other lines of industry established in this country since the war, for there is a reaction from this sacrifice and struggle, which is bound to be good for America, if it makes us use our wits about the things at hand.

We have now; and in the process the little plant used all over the South and West and Central West as a hedge, the osage orange, having little or no commercial value up to about two years ago, is now used, unless I am mistaken—I know it is used, but I mean mistaken as to the quantity—it is now used, I think, to the extent of about eight hundred thousand pounds a month for producing a good yellow dye, good for making yellows and browns—and which, per-

haps, in a measure accounts for the prevalence of yellows and browns in the ladies' attire at present.

For instance, the Commissioner of Fisheries was not long ago in California. We now, as you probably know, finish and dress and dye all our own sealskins in this country. We brought that industry bodily from across the sea—brought the whole industry over here, and we are now the largest producers of those goods in the world, and we are also the largest buyers of them; but we used to produce them in Alaska, and ship them to Europe, and then have them shipped back here, and then we were the largest buyers of our own goods thus made.

Another Waste Checked

In that process oak galls are used, and instead of looking for them at home, we bought them from Turkey, and we paid fifty dollars a ton for them, but since the war, of course, it has not been very handy to get them from Turkey. So two weeks ago a discovery was made on a large reservation in California, where they found enough oak galls so that they could be shovelled up, and inasmuch as the supply from Turkey is shut off just now, it is comfortable to have them at home—just one more American source available, for the going and taking—the sort of thing which has not been indulged in in the past.

For example, you and I, every time we have been to the seashore and got mixed up in a piece of kelp, have sworn at it. You have not, but others have. There was a sale of ten thousand tons of American-made potash, made from kelp, only a few days ago in this country, and there are forty or fifty concerns upon the Pacific Coast at work making potash out of kelp now, and it is a growing business.

Coming in This Series

Next Week

War Changes Business Conditions

Following Weeks

Business Will Be Good But Different
Are You Studying Changes in National Business?

Are You Planning to Adjust Your Business to Changing Conditions?

Are You Adjusting Your Business to Changing Conditions?

14 Emerson Motor Men Are Charged with Fraud

Charge Is Made That They Conspired to Use Mails to Defraud in Floating Company

NEW YORK, June 5—One hour after a receiver in bankruptcy had been appointed to-day for the Emerson Motors Co. fourteen men connected with the company and its stock promotion were indicted by the Federal grand jury on a charge of conspiring to use the mails to defraud the public.

The charges cover 87 typewritten pages and in substance allege that the company sold its stock on representations which it did not intend to carry out. The allegations are similar in substance and tone to those made by the petitioners in bankruptcy, whose claims are set forth in another story herewith.

Those indicted are: Theodore A. Campbell, president; Robert Craig Hupp, former vice-president and general manager; George N. Campbell, treasurer; George B. Gifford, Nicols Field Wilson, Willis George Emerson, Henry B. Humphrey, William A. Morgan, Osborne E. Chaney, Frank Sturkens, William Loomis, Byron R. Riess, William H. Stetson, and Robert P. Matches; the companies involved are: Emerson Motors Co., manufacturer; C. R. Berry & Co. and Robert P. Matches & Co., brokers; H. B. Humphrey Co., Boston, advertising agent.

Bail was fixed at from \$250 to \$10,000 for the various men and was readily furnished.

The receiver in the bankruptcy action states that he has sent two men to the company's plant in Kingston, but has as yet secured little information as to the status of the business.

NEW YORK, June 4—A receiver in bankruptcy was appointed to-day for the Emerson Motors Co., which achieved national repute during the past year through advertisements boosting the sale of its stock.

The receiver was named at the request of three stockholders, whose names and claims are: Francis M. Justis, \$300; David Rosenthal, \$100; Carmine Zammaro, \$500. The receiver is John B. Johnston, a law associate of W. Bourke Cockran.

The allegations of the three stockholders are voluminous. They charge that the company, incorporated under the laws of Delaware for \$10,000,000—\$3,000,000 common and \$7,000,000 preferred—was originated as a "stock-jobbing scheme" for getting the money of an "unsuspecting public."

It is further claimed that the assets do not exceed \$100,000 and that the liabilities are "far in excess of \$500,000." Of the stock, which was so widely advertised, it is charged that \$2,700,000 of it—\$10 par value—was sold to Nicholas F. Wilson, for underwriting, on his promissory note for \$470,000, that

\$3,000,000 of it went to Emerson, Hupp, Campbell and others and that \$1,000,000 is in the treasury.

As to the industrial progress of the enterprise, it is charged that the company never had serious dreams of being a manufacturing giant, despite the advertising claims, and that much of the money realized from the sale of stock has been spent in advertising the sale of stock and has been otherwise dissipated.

The company is said to have claimed it had orders for 60,000 cars, but this the petitioners doubt, and it is also asserted that the promoters must have had doubts of their ability to wring a fortune out of a car that would sell at retail for \$395, as was advertised.

The attention of the court is called to the Emerson financial statement of August 15, 1916, in which, it is stated, "plans, specifications," etc., are listed at \$6,999,000, the plant at \$5,312.41 and the "tools and machinery" at \$930.41.

As an act of bankruptcy justifying the petition it is charged that the company has transferred to creditors \$10,000 within recent weeks.

The Emerson Motors Co. made its first appearance in the middle of 1916. Later offices were opened at 1328 Broadway, and it was announced that the car would be a four with a 3½ x 4 block motor, with 110-in. wheelbase, one-man top and considerable equipment.

In October, 1916, it was announced that the plant of the Peckham Railway Car Truck Co., in Kingston, N. Y., had been secured, and that the production schedule called for 30,000 cars in 1917. With electric lights, starter, speedometer and tire carrier the car, it was advertised, could be secured for \$470. It was stated that manufacture of 500 cars would be carried on during the latter part of 1916 in a plant in Long Island City, and that activity then would be concentrated in Kingston.

The latter part of October Motor World made a personal investigation of the Emerson plant and found that manufacture seemed really under way. Stocks were on hand and cars were being assembled. No dealer contracts had been assigned, although quite a few retail sales had been signed up. An audit by the American Audit Co. showed liquid assets of \$551,000; cash on hand, \$307,447, and securities, \$182,000.

In March R. C. Hupp, the designer of the car and formerly with the Hupmobile, resigned as vice-president, director and chief engineer of the company and opened an office of his own in Long Island City for other enterprises. At the same time the company, according to investigation, was building 5 cars a day and had shipped quite a few cars. While the project did not measure up to some of the big-production ideas advertised, the company nevertheless was proceeding with manufacture.

About two weeks ago the company had a stock of about 200 bodies on hand, a quantity of frames, wheel rims and other parts. It stated that it was having some difficulty getting transmissions but that cars were being driven out at the rate of five a day.

Starts Suit to See If Henry Ford Is a Trust

North Carolina Brings Action Under State Laws—Dealer Contracts a Point at Issue

RALEIGH, N. C., June 4—An anti-trust suit has been brought in this State against the Ford Motor Co.'s branch in this territory. A summary of the charge is that the Ford company is very restrictive in its contracts with its dealers, does not permit them to sell other cars, and insists that they handle only such parts as are manufactured by the Ford company.

This question of permitting dealers to sell parts other than those made by Ford has been a subject of considerable discussion in the parts trade, and has been discussed by jobbers when they have assembled at association meetings.

The Ford company's contention is that it insists upon its dealers selling only Ford parts because they are better than the so-called imitation parts. Little information of a specific nature on this point has thus far developed.

It does not seem to be disputed that the Ford company is not anxious to have its dealers handling other cars, and evidence has been introduced to show that quite a number of dealers have discontinued other agencies rather than give up the Ford.

It is asserted by the Ford company that its various restrictions and regulations are to promote better service to the public and are not designed to stifle competition, it being maintained by the Ford representative that, because of the character of the business, Ford has no real competition.

There are about 125 Ford dealers in North Carolina, and 85 per cent of them handle the Ford only. Practically all of them are said to have given up other agencies. J. W. Brown, of the Charlotte branch of the Ford company and a traveling representative, was a principal witness, as was J. G. Fitzsimons, of the Carolinas Auto Supply House, Charlotte.

War Truck Parts Interchangeable.

WASHINGTON, D. C., June 4—Engines and gearsets used in many of the military trucks to be purchased by the War Department of the United States Government are to be interchangeable, without regard to the particular make of either. A decision to make such interchangeability possible was reached at a two-day meeting here between members of the Advisory Commission of the Council of National Defense and representatives of engine and gearset manufacturers and makers of trucks. The Society of Automotive Engineers is lending valuable assistance in the perfection of the plan, which, it is expected, will not only facilitate the preparation of the requisite number of trucks for service but will greatly decrease replacement and maintenance problems.

Spark Plug Man Has His Troubles, Says Champion

Porcelain Is Difficult Material to Handle—Leakage a Trouble Difficult to Combat

INDIANAPOLIS, June 2—Some interesting side lights on spark plug construction and ignition troubles were given in the address by Albert Champion, Champion Ignition Co., before the Indiana Section of the Society of Automotive Engineers last night at the Hotel Claypool.

He showed that the best porcelain is the one which has the least amount of leakage of electrical current, but there is no porcelain made which has not a point at which it breaks down. It must be remembered that in a cylinder which is firing with too rich a mixture, a virtual carbonizing furnace exists, and this soon has its effect on the porcelain of the plug. Porcelains are classified as soft and will absorb both carbon and water. When carbon is absorbed the porcelain is transformed in its molecular formation and the leakage through the insulator increases.

Speaking of steatite, which was used as the insulating material for the Bosch plugs, which are no longer manufactured, Mr. Champion explained that this is a soapstone or talc stone. It has a high dielectric strength, but it is difficult to glaze. The procedure followed in the manufacture of the steatite plugs is to first vitrify and then to use a low-fusing point glaze. It has been found best with this type of insulation not to use a glaze at all but to rely upon a high polish.

There are two kinds of mica plugs, the wrapped type and the washer. Mr. Champion said that the difficulty with this type is that there is a large percentage of throw-outs due to the fact that the mica is so easily affected. Even the moisture of the hands, he said, will have its effect on the plug and reduce the ability to hold current. The chief difficulty, he pointed out, is the fact that once the mica absorbs oil it leaks badly. The amount of leakage of a mica plug that is unaffected by dampness or oil is very small.

The carbureter is often blamed for troubles which are inherent in the spark plug. One of these is irregular firing on acceleration due to the leakage of the high-tension current through the insulator, thus tending to greatly weaken the spark.

Gregory Flynn, sales engineer of the Rajah company, pointed out that the manufacturer often did not mount the plugs properly. He said that the engine was first designed and the question as to where the spark plug could be placed was decided later. He pointed to the lessons derived from racing on this point, and showed how in the racing engine the location of the spark plug is given very careful consideration.

Mr. Flynn mentioned the Delage and Peugeot plug mountings as good examples where no trouble is experienced with the plugs. He compared this with the early Duesenberg engines, where the plug was mounted through a brass cap which acted as a heat insulator. These engines had continuous plug trouble until the locations were changed. The Cadillac 1913 was mentioned as another example of where the plug had to be changed in order to provide better cooling. Mr. Flynn stated that after the changes were made in these plug locations the troubles disappeared. He suggested that designers be very careful in this matter if the best results are to be obtained.

Marmon Is Made Signal Corps Major

WASHINGTON, June 5—Howard Marmon has come to Washington to locate for an indefinite time that he may give his sole attention to the work of assisting Major Henry Souther, head of the Aircraft Production Board, in the capacity of Aircraft Engineering Engineer. He will be commissioned a major in the Signal Corps in this capacity and will be in direct charge of aircraft engines for the Signal Corps, his division being one of four departments under Major Souther. The other departments are Airplane Engineer, Experimental Engineer and Inspector of Materials purchased for the Signal Corps. Captain V. E. Clark of the regular army has been appointed Airplane Engineer. Heads of the two other departments are yet to be selected by Major Souther. The report that Marmon will go to France soon is without foundation.

Blevins Sells His Interests

TOLEDO, June 1—Harry W. Blevins has retired from the Studebaker Sales Co. of Ohio, which was formed last October and is a combination of the Blevins Auto Sales Co., A. R. Davis Co. and the Aaron DeRoy Motor Co. of Pittsburgh. Blevins has sold his interest and is succeeded by A. R. Davis, who was vice-president; DeRoy moves up to the place of vice-president and J. O. Hahn, who was treasurer of the Ohio company, retains that position. Headquarters of the company have been moved to Cleveland from Toledo. The company is one of the largest territorial distributors in the country and controls Studebaker sales in Ohio and parts of five adjoining states.

Lansing's Used Car Show

LANSING, MICH., June 4—The Lansing Automobile Business Association opened its used car sale at the city market Thursday morning. Despite the unfavorable weather more than 50 cars were shown. The sale will continue Friday and Saturday. Seven dealers are showing cars and it is said that more than 150 cars will be on the market before the close of the week.

Gem Light Delivery at \$700, Touring at \$845

Grand Rapids Company Enters Field with Dual Product—112 In. Wheelbase—Standard Units

GRAND RAPIDS, June 2—The Gem Motor Car Corp. is putting out a touring car and a light delivery wagon on the same chassis. The touring car is a standard design and the light delivery wagon can be secured either as an open express wagon, with a canopy top, or as a full panel job for city delivery. The price of the touring car is \$845, f.o.b., and of the delivery wagon is \$675 as an open express, \$700 with a canopy top, and \$725 with a full panel.

The specifications of the new car show it to be assembled from standard units. The engine is a Golden, Belknap & Swartz; carbureter, Carter; electric lighting and starting system, Dyneto; clutch, Golden, Belknap & Swartz; gearset, Grant-Lees; and the axles, Walker-Weiss. It is fitted with a Lavine steering gear, and Stewart speedometer.

The powerplant is a four-cylinder, 3¼ x 4¼ L-head block, giving a unit powerplant with three-point suspension. The camshaft drive is by silent chain, and lubrication is by circulating splash, with a piston type pump.

The electrical system comprises a starting and lighting outfit operating at 6 volts and a battery ignition system working in connection with a Detroit 6-volt storage battery having 80 amp. hr. capacity.

The drive is taken from the engine through a Golden, Belknap & Swartz plate disk in oil clutch to the three-speed selective gearbox. The final drive is a bevel gear system with the propulsion and torque taken by the Hotchkiss drive method through the rear springs. The reduction in the rear axle is 4 to 1, and the tires are 31 x 4 in. Millers. The wheelbase is 112 in.

Drexel Dissension Disappears

CHICAGO, June 4—Difficulties which threatened to disrupt the Drexel Motor Car Corp. have been ironed out, apparently, and according to A. J. Farmer, president and general manager, the concern will proceed on a better foundation than heretofore. Yesterday a directors' meeting was held at which stockholders agreed to furnish additional funds to put the concern in good financial condition. Then men in the plant were laid off temporarily while the difficulties were being smoothed out, but Farmer says they will be put to work again in a few days. Another directors' meeting will be held next Sunday.

Armored Car Company Formed

DETROIT, June 1—The Armored Motor Co. has been incorporated with \$100,000 capital stock in this city. Incorporators include W. A. Ross, A. L. Mancourt, and W. C. Artz.

Some Industries Must Expand; Others Shrink

Business Is Changing, Says Banker —Luxury Workers Must Find Place in Necessity Work

NEW YORK, June 2—The course of business has confirmed the opinion that war meant an increased stimulus to the industries, modified only by the necessity that under the pressure of more business than they can handle there must be contraction in some quarters in order that there may be expansion in others, says the National City Bank, in its Monthly Bulletin. Luxury trades are suffering, as inevitably they must, but that only means a shift of employment.

The great industries of the country, with steel leading, never before were under such pressure. Apparently the Government requirements are proving to be more of a factor than was anticipated; at any rate private consumers are competing so vigorously with each other for the remaining capacity that prices are still on a rising scale.

The announcement that the British Government has discontinued work upon the construction of a great new munitions factory for the reason that it would be able to buy more finished munitions in the United States shows the effect of granting credits and indicates that there is no end of this class of business except in the limit of our capacity.

The departure of one engineering commission to Russia and another to France, and the announcement that several thousand picked railway men are to be sent to France to put the railways in order, are indications of enormous demands from those quarters.

Inquiries in the steel trade indicate an enormous booked up business. Most of them now are for the first half of 1918, but there is willingness to contract even into 1919, although on the basis of present prices this is highly speculative and steel-makers discourage it. It is common opinion, however, that the iron and steel business is in for several years of full production, and the largest people in the trade are proceeding upon this theory.

The weak spot in the industrial organization is the railroads. Nearly all the industries could do more if they were not hampered in getting necessary supplies and could get their products promptly out of their way. This is particularly true of the handling of coal and coke.

The railroads are undoubtedly doing better, but the volume of traffic is in excess of their capacity. They need equipment and facilities of every kind, but perhaps their most pressing need is for locomotives, for the strenuous service of the past year has been hard upon motive power. Railway officials are putting forth every possible effort, operating all the railways as one system, so that sur-

plus capacity on any line is brought into use. The volume of traffic actually handled is much beyond any past record.

With the advance of spring, retail trade has improved and there is little to suggest any curtailment on account of high prices. Reports have been current of the effect of economy in the textile trades, but whatever curtailment there has been in style goods has been quite lost in the demand for staple goods and for the Government's wants.

The resumption of outdoor work increases the demand for labor, and there are complaints of shortage everywhere. Farm wages by the month are higher than ever before, made necessary by the competition of the town industries.

The good prospects now for the crops gives encouragement to hope that living expenses will at the worst be no higher next winter, and may be lower. If so the strain in the industrial situation will be in some degree relaxed.

All agricultural products at present are at very high prices. Hogs at western markets keep close to the \$16 mark, choice steers at Chicago \$11.25 to \$13.65, spring lambs \$17; all of these figures per hundred weight. Butter and eggs are going into cold storage at the highest prices ever known. Wool has been selling in Montana up to 50 cents per pound, and a few sales at 52 cents have been reported.

New York Trade Tries Separator Repeal Again

Has Ordinance Introduced in Board of Aldermen Giving Permanent Relief from Hard Law

NEW YORK, June 4—The dealer and garage associations of this city are back of an ordinance that has been introduced in the Board of Aldermen repealing the long-fought gasoline separator ordinance. The latter requires the installation of gasoline separators in the sewage systems of garages and service stations.

A repeal of the law was attempted once before, but failed because of the veto of Mayor Mitchel. Since then the fight has been carried to the Court of Appeals of the State of New York, where the motor trade lost. The next logical step was a renewed attempt at repeal.

It is the contention of the motor trade that the devices are unnecessary, and that, even if necessary, every device thus far insisted upon by the law is expensive and will not do the work for which it is designed.

Oakland Production 60,000 Cars

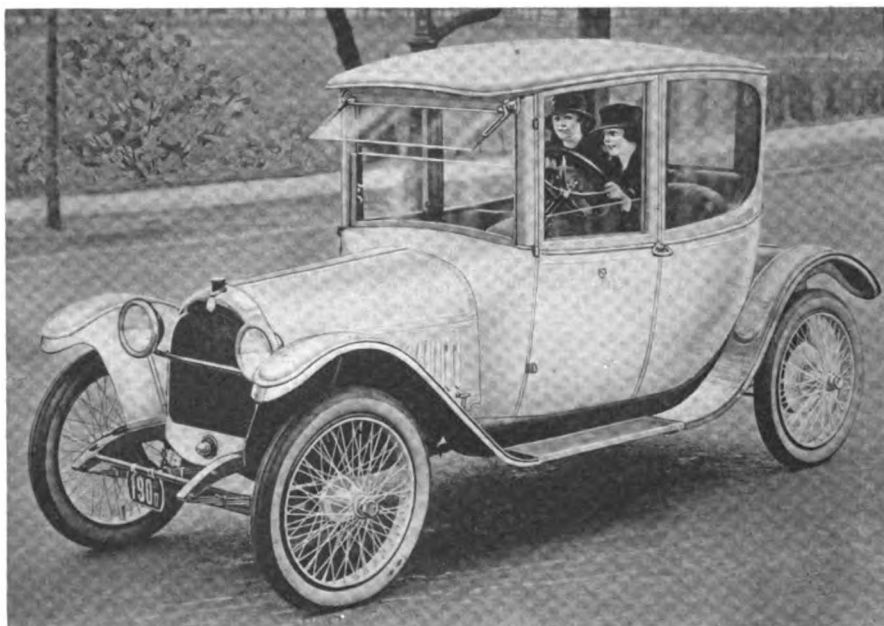
PONTIAC, June 4—Production of the Oakland Motor Car Co. for the 1917-18 season is scheduled to be 60,000 cars.

Woods Dual Power Car Enlarged

CHICAGO, June 4—The Woods Motor Vehicle Co. is now making deliveries of an enlarged and revised model Dual Power car. But one model, a four-passenger coupe selling for \$2,950, will be made; stock colors are Royal blue and Brewster green, and wire wheels are \$25 extra. The principal changes include the adoption of a four-cylinder 2 3/4 x 4 Continental engine, the lengthening of the wheelbase to 124 in. and the use of tires 35 x 4 1/2. The electrical elements

are identical with those of the previous model.

In general appearance the car has been changed but little except for the adoption of a radiator which slants backward almost imperceptibly. The factory is prepared to produce between 650 and 750 of this model this year. V. E. Gustafson, secretary of the company, is at present making a tour of Eastern states in one of the new cars and will visit all of the principal cities.



Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

H. S. Quackenbush, formerly credit manager for the Firestone Tire & Rubber Co., Dallas, Texas, has been made branch manager at El Paso, Texas.

L. W. Maxwell, service man for the Velle Motor Corp., Moline, Ill., has been placed in charge of the Southwest territory and will have headquarters in Dallas.

V. E. Newman, formerly connected with the Empire Motor Co., has joined the F. L. Shaw Co., Dallas, Studebaker distributor.

H. H. Harris has been appointed district manager of the Central States for the Barley Motor Car Co., Kalamazoo. Robert Lanzing has been appointed special factory representative, covering the major portion of the South and Southwest.

F. S. Young has become advertising manager of the Stanley Motor Carriage Co., Newton, Mass. He was formerly associated with the Stalker Advertising Agency, Toledo, and was later advertising manager of the Allen Motor Car Co., Fostoria, Ohio, and more recently with the Amco Motor Co., Norwalk, Conn. C. E. Broad has joined the company in charge of engineering and designing.

R. A. Smith has become manager of the Chicago branch of the United Motors Service, representative of the Delco and Remy electrical systems and Klaxon horns.

W. L. Agnew has resigned as manager of advertising in the Chalmers Motor Co., Detroit.

Richard Everett, formerly of Bridgeport, Conn., has joined the sales organization of the Standard Woven Fabric Co., Walpole, Mass., manufacturer of Multibestos brake lining. Everett has had wide experience in merchandising automobile accessories.

Carol B. Reynolds, after 26 months of service as manager of the Goodyear Tire & Rubber Co.'s branch in Tacoma, has been promoted to the same position in Sacramento. Arthur E. Patterson of Portland, Ore., has been transferred to the Tacoma branch as manager.

R. E. Winans has been appointed service manager for the Harroun Motors Corp. He was formerly connected with the Paige-Detroit Motor Car Co. as service manager.

G. M. Bicknell has been appointed sales engineer of the Carter Carburetor Co. of St. Louis, and will have charge of factory sales for Detroit.

B. W. Collins has purchased a considerable interest in the Marshall Castings Co. He was formerly sales manager of the Parker Rust Proof Co.

Jack F. Ryan, manager of the Danville (Ill.) branch of The Gibson Co., Overland distributor for Indiana and eastern Illinois, with headquarters in this city, has given up the automobile business, for a time at least, while he is undergoing military training at the officers' reserve corps camp at Fort Benjamin Harrison.

Stephen D. Briggs has returned from London, where he has been representing the Hupp Motor Car Co. He will return to his old field as branch manager of the Northwest Hupmobile Co. at Minneapolis.

Walter C. Keys has been appointed assistant to J. G. Utz, director of engineering for the Standard Parts Co., with headquarters at the executive offices, in Cleveland. Keys has

been for several years with the Cadillac Motor Car Co., where springs were his specialty.

J. Stanton Read, Atlanta, Ga., retail sales manager of the Johnson-Gleaton Co., Reo distributor, has been appointed State traveling representative for the same firm.

James S. Harris, Nashville, Tenn., has been promoted to assistant sales manager of the Blackwood Auto Co., Ford distributor.

James A. Braden has been appointed director of advertising for the Standard Parts Co., Cleveland. He was previously advertising manager of the Diamond Rubber Co.

W. G. Clay has been appointed sales manager of the Abbott Corp., Cleveland.

William T. Brush, assistant sales manager of the Studebaker Corp., has resigned and has purchased a one-half interest in the Philadelphia Sales Corp., distributor of Studebaker cars.

L. W. Kennedy of the United States Tire Co. has been appointed district agent with headquarters at Atlanta, Ga.

Clinton B. Amoroux, who has been assistant to the general sales manager of the Locomobile Co. of America, has resigned to become assistant factory manager for the Parish Mfg. Co., Detroit.

P. W. Hine has been appointed assistant sales manager of the Locomobile Co. of America, Bridgeport. He was formerly manager of the Bridgeport branch and is succeeded by M. A. Pollock.

P. M. Heldt, for many years engineering editor of the Horseless Age, has joined the editorial staff of The Automobile.

H. L. Dyer has been promoted by the Scripps-Booth Corp., Detroit, to be special representative of the Southern district. His headquarters will be in Atlanta.

David M. Manning has been placed in charge of an export department which has just been completed by the L. & D. Motors, Inc., New York, Marion-Handley distributor.

Charles Edward Broad has become affiliated with the Stanley Motor Carriage Co., Newton, in general charge of engineering and designing.

William J. La Casse has been appointed Pacific Coast Supervisor for the Maxwell Motor Sales Corp., with headquarters in San Francisco.

Ambulance for Jobbers

EXCELSIOR SPRINGS, MO., June 4—The National Association of Automobile Accessory Jobbers will send an ambulance to Europe. At a three-day session here, directors authorized the purchase of the vehicle and also the appropriation of sufficient funds to provide a field man for its operation for one year. The ambulance will bear the name of the association. The organization also authorized the purchase of \$10,000 worth of Liberty Bonds.

Fourteen jobbers were elected to membership and six manufacturers to associate membership at the meeting. The financial report shows a balance of \$34,652 in the treasury. Since the inauguration of the collection department, 49 per cent of the claims turned over to it have been collected, the total amount being \$120,674. The telegraphic code has been printed and is now ready for distribution. The next meeting will be held late in August or early in September and though a definite place has not been decided upon, a preference was indicated for Colorado Springs or Denver.

Detroit Factories Talk Over Motorization Plan

Endeavor to Arrive at Standard of Specifications Under Which to Work for Government

DETROIT, June 2—Executives from a number of the factories met yesterday noon at the Detroit Athletic Club to discuss suitable specifications under which to manufacture supplies for the Government and also the matter of the proposed motorization of the field artillery. Captain William E. Dunn, United States Field Artillery, now on duty in Detroit, told of experiments of the artillery board and predicted that the motorization of the field artillery would produce a saving in money and men. Captain Dunn stated that 5400 trucks would be needed within the next year for the army of 1,500,000 men which the Government plans to send abroad. These would release for other service 4040 men and 54,000 horses. Two committees were appointed to investigate motorization and supply specifications, and will report at a future meeting. One committee comprises J. G. Vincent, vice-president in charge of engineering of the Packard Motor Car Co.; E. E. Hemp, chief engineer of the Denby Motor Truck Co., and Irving E. Rocamp, technical engineer for the King Motor Car Corp. This committee is in Washington. The local committee includes Lee Anderson, vice-president of the Hupp Motor Car Corp.; Charles Denby, export manager for the Hupp Motor Car Corp.; D. C. Stanbrough, of the Packard Motor Car Co., and Theodore Barthell, of the King Motor Car Co.

White New York Branch in New Home

NEW YORK, June 4—The New York branch of the White company, which has for years been located at Broadway and West Sixty-first Street, is this week holding an opening in a new sales building at Park Avenue and East Fifty-seventh Street. Park Avenue at this point is a broad parkway with a park in the center. The White move is away from the main Motor Row section, but is in that smaller and more exclusive colony which has grown up of late years on Fifth Avenue and nearby streets.

Thomas Truck Goes to Schenectady

NEW YORK, June 4—The Thomas truck and the armored cars which Charles K. Thomas has produced in this city are to be produced in Schenectady in the old Mohawk brewing plant. Both the Thomas Auto Truck Co. and the Armored Motor Car Co., which were founded by Thomas, have been taken over by the Consolidated Motors Corp., which also was formed by Thomas for the purpose of combining truck company properties. The Mohawk Brewing plant was secured by the Consolidated to provide a home for the combined companies. The vehicles will be continued substantially as heretofore.

Tax on Cars in Use Is Substituted for 5% Fee

Is Graded from \$7.50 to \$25 and Is to Be Paid by Owners—Business Cars Exempt

The Proposed Tax on Cars

List Price	Tax
\$500 and under	\$7.50
\$500 to \$1,000.....	10.00
\$1,000 to \$2,000.....	15.00
\$2,000 to \$3,000.....	20.00
\$3,000 and over.....	25.00
Motorcycles	2.50

Reductions from list of 10 per cent a year for used cars.

Tax to be assessed July 1.

WASHINGTON, June 4—The Senate war revenue bill, as tentatively drawn, finally cuts out the House tax of 5 per cent upon manufacturers and substitutes a tax upon motor car owners, ranging from \$7.50 to \$25. Reductions in the tax are made at the rate of 10 per cent for each year's use of cars up to five years, which makes the maximum allowance 50 per cent.

According to figures submitted by the Treasury Department, these taxes not including trucks, would bring in approximately \$42,000,000.

The Senate Finance Committee's bill is now practically complete except for the newspaper and magazine sections, and Senators Simmons, chairman, and Penrose, ranking Republican member, are holding informal conferences with representatives of publishers and officials of the Post Office Department regarding the proposed taxation on publications in lieu of the increased second-class mail rates carried in the House bill. The Senate bill will carry an excess profits tax of 16 per cent, as carried in the House bill.

Treasury experts estimate that there are 1,400,000 owners of cars subject to the \$7.50 tax, 760,000 subject to the \$10 levy, 1,219,000 in the \$15 class, and 231,000 subject to the \$20 rate. The committee's plan provides:

"That on and after July 1, 1917, special taxes shall be, and hereby are, imposed annually on owners of automobiles and motorcycles, the rate of tax to be based on each automobile or motorcycle as follows: Motorcycles, \$2.50; automobiles, listed retail price at time of purchase not over \$500, \$7.50; over \$500 and not over \$1,000, \$10; over \$1,000 and not over \$2,000, \$15; over \$2,000 and not over \$3,000, \$20; \$3,000 and over, \$25.

"Provided, That the special taxes herein imposed shall not apply to manufacturers and dealers as to unsold automobiles and motorcycles held for sale, or to owners of automobiles and motorcycles held for sale, or to owners of automobiles or motorcycles used exclusively for business; provided further,

"That evidence of payment of the tax shall be by receipt or stamp to be attached to automobile or motorcycle, under such rules and regulations as may be prescribed by the commissioner of internal revenue, with the approval of the Secretary of the Treasury; and provided further,

"That the special tax paid within the fiscal year shall not be imposed again within that fiscal year if ownership changes."

In deciding to exempt trucks from taxation on the theory that they are a necessity to business, the committee also decided to exempt all cars used exclusively for business purposes. This means that taxicabs, other cars of the jitney type used exclusively for passenger carrying purposes, and motorcycles used in business pursuits, only, will be exempt.

Delion Has All-White Tread

TRENTON, N. J., June 4—The Delion Tire & Rubber Co. is now supplying its tire with an all white tread, a tone between an India tint and a light buff. The Delion company on April 15 increased its guarantee to 6000 miles, and at that time slightly increased the prices and subsequently has made no further increase.

Horning Takes War Job in Tractor Work

WAUKESHA, June 2—Harry L. Horning, secretary, general manager and chief engineer of the Waukesha Motor Co. and a member of the Society of Automotive Engineers, has accepted the offer of the Government to take charge of the farm and ordnance tractor division of the committee advisory to the Council of National Defense and its division of war munitions and food control. Horning will make his headquarters at Washington.

New Two-Row Ball Bearing

PHILADELPHIA, June 4—The Carlson-Wenstrom Co. has entered the ball bearing manufacturing field with a new design of two-row bearing styled Carwen. By an ingenious method of assembling, the need for filling grooves is obviated, though the outer race is made in a single piece. The bearing is made either with a separating cage for high speeds or entirely filled with balls for low speeds. The company has also taken over the manufacture of the Akimoff dynamic balancing machine, which has been redesigned and will in the future be marketed under the name Carwen dynamic balancing machine.

Top Company Formed

CARO, MICH., June 1—The Miller Auto Top Co. has been incorporated for \$20,000. Incorporators are T. W. Atwood, B. H. Smith and Peter A. Miller. The company will manufacture automobile tops for Ford cars.

Make Motors for Cars, Planes and Submarines

Gloetzner, Hinkley and Mendelssohn Leave Detroit Companies to Form Titan Motor

DETROIT, June 2—The Titan Motors Co. has been formed with a capital of \$350,000 with A. A. Gloetzner, who is in charge of the sales, engineering, and service departments of the Covert Gear Co., Carl C. Hinkley, chief engineer of the Chalmers Motor Co. and Louis Mendelssohn, treasurer of the Fisher Body Corp., incorporators. The company will manufacture motors for trucks, passenger cars, airplanes and submarines. For the first 6 or 8 months a temporary plant which has been leased will be used and production will start with 25 motors a day, which officials of the company state is a very low figure as compared to production plans a year hence. An option has been taken on land and construction of a factory will soon be commenced.

Carl C. Hinkley, who is chief engineer of the Chalmers Motor Co. and also head of the Detroit Section of the Society of Automotive Engineers, will resign from the Chalmers company within the next few months and assume the duties of president of the Titan Motors Co. A. A. Gloetzner has been elected vice-president. William Fisher is secretary and treasurer. Fisher is closely allied with the officials of the Fisher Body Corp. Directors of the company include C. C. Hinkley, A. A. Gloetzner, William Fisher, Louis Mendelssohn, treasurer of the Fisher Body Corp., A. Mendelssohn, secretary of the Fisher Body Corp., Frederick J. Fisher, president of the Fisher Body Corp., Charles Fisher, factory superintendent of the Fisher Body Corp. It is anticipated that the company will be steadily producing truck motors, to which it will first devote its energies by August 1.

Menominee Trucks for Export

MENOMINEE, June 2—The Menominee, Motor Truck Co., Menominee, Mich., has closed a contract with the Claude M. Nankivel Co., New York, a large exporting concern, for approximately \$2,000,000 worth of Menominee motor trucks for shipment to foreign shores. The new order will require that the working force be increased from 100 to 150 at once. It is said that most of the trucks will go to Russia, where C. M. Nankivel, president of the New York company, is now engaged in the establishment of headquarters.

Milburn Price Goes Up June 15

TOLFO, June 4—An advance of \$100 in the price of the Milburn electric, manufactured by the Milburn Wagon Co., is effective June 15. The present price of the car is \$1,685 and orders will be taken at that figure until the date announced for the new price.

Drastic Tax in Texas Goes in Effect July 1

Cars to Be Taxed on Horsepower, Value and Weight—State Reg- istration Provided

DALLAS, June 2—On July 1, the new motor car and motor bus law becomes effective in Texas. Under this law there will be a change in the registration of cars. It means that cars will be numbered by the state instead of by the counties. It means, too, that owners must pay into the coffers of the state between \$5,000,000 and \$6,000,000 annually in taxes. Of this amount more than one and one-half million dollars will go for the betterment of the county roads, under the State Highway Commission bill.

The average car owner, whose car has a taxable valuation of \$450, must pay a total tax of \$23.10, plus the war tax. The Ford car owner whose car has a valuation of \$250 will be compelled to pay to the state, county and city a tax of \$17.25 annually. This figure is based on the following: Tax 35 cents per horsepower, no car to have less than 20 hp. amount \$7.50; state and county tax average \$1.10 per \$100 valuation; city tax rate, average \$1.80 per \$100 valuation plus the \$3 registration fee.

The estimate of the total tax valuation of more than \$5,000,000 is based on the calculation that 260,000 cars are in operation in Texas, the tax to be as follows:

Tax of 35 cents per horsepower, every car having average of thirty horsepower	\$2,730,000
State tax rate of 60 cents per \$100 valuation, each car to have a valuation of \$450, average \$2.70 per car	702,000
County tax rate average 54 cents per \$100 valuation, total \$2.43 per car or	631,000
City tax rate average for thirty largest cities of the state where it is estimated 40 per cent of cars in Texas are in operation, tax rate averaging \$1.80 per \$100 valuation, each car having valuation of \$450 with 94,000 cars in operation	761,400
License fee of \$3 per car	801,000
Total	\$5,625,400

This estimate, it is pointed out by the state department, is based on an exceedingly low valuation and it is thought when the assessments are made there will be great increases. The tax rate for a car with a 50 hp. and a valuation of \$1,000 will total \$49.50. It is pointed out, however, that the per cent of high priced cars compared with the number of low priced cars in the state is small.

By the time this law is effective, the members of the State Highway Commission are to be appointed. Deputies will also be named and the work of registration will immediately begin. Failure to properly register means the filing of misdemeanor charges, fines therefore to

range from \$10 to \$25. The funds derived from these fines are to go to the State Highway Commission and will be used for the betterment of the highways.

In addition to this fee for passenger automobiles the law fixes the annual license fee based upon the carrying capacity per wheel as follows:

Weight in lbs. per wheel	Fee
1001 to 2000	\$20
2001 to 4000	40
4001 to 6000	60
6001 to 8000	150
8001 to 10,000	300

For loads greater than 10,000 lb. per wheel license fees shall be charged for each vehicle at the additional rate of \$500 for each 1000 lb. increase in weight, or fraction thereof.

There are other salient features of the law. The most important are these:

Every motor vehicle shall carry a state number, showing the words, "Registered Motor Vehicle, Texas." Heretofore the numbers have been issued by the respective counties of the state.

Every automobile shall display this license plate and number in the front and rear of each car.

For the remainder of this year, from July 1 to December 31, each car owner will be compelled to pay one-half the annual fee and tax for his car.

Any manufacturer or dealer in motor vehicles may in lieu of licensing each car take out a general license number for a fee of \$15.

Motor vehicles from other states are exempt from the provisions of this act for a period of 90 days, upon proof that they have complied with the motor vehicle laws of some other state. However, if he remains in the state for thirty days he must pay a fee of \$1.

Globe Truck Makes Changes

ST. LOUIS, June 1—The Globe Motor Truck Co. has made a change in its management and also in its engineering department. Walter F. Sheehan has taken charge of the company in the capacity of general manager. The engineering department has been put under the supervision of C. T. Schaefer. He was formerly engineer of the Mogul Truck Co. The company is now producing a line of 1, 1½ and 2-ton trucks.

The Liberty Loan

The \$5,000,000,000 bond issue of this year is named "The Liberty Loan of 1917" because it is to be a loan from a free people to be used in freeing the world.

It is the loan of a liberty-loving people to be devoted to the establishment of liberty in Europe and on the high seas.

It is the loan of the great democracy of the New World to redress the wrongs and support the cause of the democracy of the Old World.

Joy's Aviation Field Bought by Government

\$7,000,000 to Be Spent in Fitting Up Mt. Clemens Land for Aero Work

DETROIT, June 1—The Joy Aviation Field near Mt. Clemens, Mich., which has just been purchased by the Government from H. B. Joy has witnessed considerable activity during the last few days. Plans are being made to expend the \$1,000,000 which the Government has appropriated to fit this land for aviation work. The plans for the numerous structures were made by Albert Kahn, architect, of Detroit. The war department, for the first time in its history, has employed an outside architect.

This aviation school is one of nine which the Government will build in various parts of the country. Kahn's plans are standard. He was recently made architect of the aviation section of the signal corps of the United States army.

Airplanes and seaplanes will be tested on these grounds. Even a church will be located on the property. The Government has purchased 1700 acres for the village, which will have approximately 1000 inhabitants at the start. It will be permanent.

The school at Mount Clemens is to be a one-squadron plant. There will be 12 hangars, 60 x 60, each with a capacity of 12 machines. There will be six barracks, each with a capacity of 150 men, with the necessary mess halls for both officers and men.

Officers' quarters, quarters for the non-commissioned officers, a house for the commanding officer and a club house are among the buildings called for in the plans. There will be 36 officers. While the buildings will be only semi-permanent, they will be modern in every way, especially as to the plumbing. All will have baths with showers in the barracks.

The school, with numerous classrooms and rooms for instructors, will be about 200 x 60. In this the future flyers will be taught the technical side of their profession. Included among the buildings are a machine shop, an aero repair shop, a supply department, quartermaster's department, and a guardhouse. The noncommissioned officers' quarters will house 24 men.

A hospital, blacksmith shop, heating plant, water supply and sewer will be constructed also. The buildings, which will be of one-story type, will be of frame on concrete foundation. They will cost in the neighborhood of \$600,000, and the other equipment will bring the cost to a full million.

Truck Motors Only at Muskegon

MUSKEGON, MICH., June 2—The plant of the Continental Motors Corp. at Muskegon is to be given over entirely to the production of truck motors. It is stated that the company has received a large order from the United States Government and that for this reason the manufacturing of motors for passenger cars will be taken care of exclusively at the Detroit branch. The daily production in Muskegon is to be tripled. A large force is to be added and it is possible that the plant will be enlarged.

Stanley Steam Company Reorganized, Expanded

**Prescott Warren Heads New Company With \$2,500,000 Capital—
No Change in Cars or Prices**

NEWTON, MASS., June 4—The Stanley Motor Carriage Co., undoubtedly the oldest automobile company in the world to manufacture cars in commercial quantities, has been reorganized with increased capital, and immediate steps are to be taken to increase its production of Stanley steam cars. The factory capacity is to be enlarged at once, more manufacturing equipment installed, and a strong modern merchandising organization built up. This reorganization does not mean that the Stanley company is going to bring out a low price steam car, rumors of which have been frequent of late. Such rumors are unfounded. The new organization will make no change in the models or the price.

Under the reorganization the existing Stanley Motor Carriage Co. has been taken over by a new Delaware corporation of the same name. The new capitalization includes \$2,500,000 preferred stock and 100,000 shares common stock of no par value. The financial interests are represented by Counselman & Co., Chicago bankers. Financial arrangements are complete and no offering of stock will be made to the public.

Under the reorganization, Prescott Warren, who has been connected with the organization as vice-president, becomes president. The other officers are: Carleton F. Stanley, vice-president; Frank Jay, of Chicago, vice-president; Edward M. Hallett, treasurer; Wm. F. Garcelon, secretary, and the directorate includes the above with Charles Counselman and Arthur L. Goodwillie. Frank Jay has been Western representative of the Stanley company for many years, handling wholesale and retail business from Chicago.

The Stanley company has been one of the picturesque organizations of the motor industry in America. The company has not followed many of the accepted policies of the industry, such as aggressive merchandising, yet the cars have been produced in commercial quantities for almost 20 years. No effort has been made during that time to get into quantity production. The original Stanley Motor Carriage Co. was founded in 1898 and incorporated in 1901 by F. E. and F. O. Stanley. Stanley cars were first built in the plant of the Stanley Dry Plate Co., which continued their manufacture until 1901. The Stanley car was manufactured in quantities in 1898, at which time a production of 200 was put through. The first Stanley cars were built in 1896.

In the early days of the automobile Stanley vehicles were conspicuous in contests. Fifteen years ago the first automobile to climb Mt. Washington in the White Mountains was a Stanley, driven

by F. O. Stanley. The first car to make a mile under one minute on an American race track was the Stanley. In 1906 the Stanley figured as a leader in Florida Beach races, when the mile was covered in 28½ seconds, a record which stood for 6 years.

First Milwaukee Race July 4

MILWAUKEE, June 2—Independence Day, July 4, has been selected by the recently organized Wisconsin Motor Contest Association as the date of its first official race meeting, to be conducted on the one-mile dirt track at State Fair Park, near Milwaukee. The tentative list of events includes one-mile time trials; two-mile events for large and small cars; a 5-mile free-for-all; 10-mile handicap, and a 25-mile free-for-all. As a feature, the association has arranged an "army chauffeurs' road race," as a lesson in the efficiency of the motor car in war and to show those who contemplate enlisting as army drivers the responsibilities they will assume. It is likely that the entrants will be divided into two squads, each taking a different route between Chicago and Milwaukee. The association has opened headquarters in Milwaukee, in charge of Bart J. Ruddle, secretary and manager.

Motor Car Securities Quotations

	June 2, 1917	
	Bid	Asked
*Ajax Rubber Co.....	71	74
*J. I. Case T. M. Co. pfd.....	85	86
Chalmers Motor Co. com.....	7	11
*Chandler Motor Car Co.....	89½	92
Chevrolet Motor Co.....	95	100
Fisher Body Corp. com.....	34	38
Fisher Body Corp. pfd.....	88	90
Fisk Rubber Co. com.....	78	80
Fisk Rubber Co. 1st pfd.....	103	106
Fisk Rubber Co. 2nd pfd.....	92	95
Firestone Tire & Rubber Co. com.....	130	133
Firestone Tire & Rubber Co. pfd.....	106	108
*General Motors Co. com.....	103½	104½
*General Motors Co. pfd.....	88	89½
*B. F. Goodrich Co. com.....	53½	53½
*B. F. Goodrich Co. pfd.....	106½	108
Goodyear Tire & Rubber Co. com.....	207	210
Goodyear Tire & Rubber Co. pfd.....	106	108
Grant Motor Car Corp.....	3½	5½
Hupp Motor Car Corp. com.....	3½	4
Hupp Motor Car Corp. pfd.....	72	80
International Motor Co. com.....	6	10
International Motor Co. 1st pfd.....	35	50
International Motor Co. 2nd pfd.....	10	20
*Kelly-Springfield Tire Co. com.....	50½	54
*Kelly-Springfield Tire Co. 1st pfd.....	37	94
*Lee Rubber & Tire Corp.....	18	18½
*Maxwell Motor Co., Inc. com.....	50½	50½
*Maxwell Motor Co., Inc. 1st pfd.....	66½	67½
*Maxwell Motor Co., Inc. 2nd pfd.....	32	33½
Miller Rubber Co. com.....	200	205
Miller Rubber Co. pfd.....	104	106
Packard Motor Car Co. com.....	150	150
Packard Motor Car Co. pfd.....	96	99
Paige-Detroit Motor Car Co.....	29	31
Peerless Truck & Motor Corp.....	14	16
Portage Rubber Co. com.....	150	155
Regal Motor Car Co. pfd.....	24	24
†Reo Motor Car Co.....	29	31
*Saxon Motor Car Corp.....	42	45
Springfield Body Corp. com.....	52	58
Springfield Body Corp. pfd.....	110	117
Standard Motor Construction Co. 12½	12½	13½
Standard Parts Co.....	87	87
*Stewart-Warner Speed Corp.....	73	75
*Studebaker Corp. com.....	81½	81½
*Studebaker Corp. pfd.....	101	105
Swinehart Tire & Rubber Co.....	65	70
United Motors Corp.....	29½	30
*U. S. Rubber Co. com.....	60½	60½
*U. S. Rubber Co. pfd.....	105½	106½
*White Motor Co.....	46½	47
*Willys-Overland Co. com.....	27½	28
*Willys-Overland Co. pfd.....	94	95

*At close, June 2, 1917. Listed N. Y. Stock Exchange.
†Par value, \$10.

Bosch to Concentrate on Magneto Production

**Will Stop Making Starting and
Lighting Equipment and In-
crease Magneto Output**

NEW YORK, June 2—The Bosch Magneto Co., with plants in Springfield, Mass., and Plainfield, N. J., has practically decided to concentrate all its energies on the production of a limited number of standard types of magnetos for the immediate future. The Plainfield plant, which has been devoted to the production of electric lighting and starting apparatus, will be closed.

The change follows the resignation of President Otto Heins, and several other executives about a month ago, and the subsequent resignation of several factory executives and a number of mechanics. All these men are German subjects with property in Germany and severed their connection with the Bosch company in order not to abrogate their German holdings. Another factor has been the United States Government order forbidding alien enemies to approach nearer than ½ mile any government munition plant. While the Bosch company has not been producing munitions in the strict sense of the word, the entry of the United States into the war has placed magnetos in the class with munitions because of their wide and general use on government trucks.

Will Increase Magneto Production

Executives of the Bosch company state that the decision to concentrate on a few types of standard model magnetos will not curtail production but will have the opposite effect. It is stated that already the good effects of such concentration have been felt. Discontinued instruments include a long list of special types for which there is but a limited demand.

Prior to the entry of the United States into the war, the Bosch company was supplying large quantities of magnetos for truck equipment on vehicles shipped abroad. Shortly thereafter, however, a clause was added to standard contracts forbidding the resale of Bosch equipment to be sold, and this has somewhat reduced such business. It is believed, however, that this clause will not effect equipment sold to the United States Government.

Following the resignation of President Heins, former secretary Carl Schurz was elected to the presidency and now heads the company. Heins has retired temporarily and is spending his time traveling. Wm. De Voe has been elected secretary, and G. Jahn, vice-president and general manager. A. H. D. Altree assumes the duties of sales manager.

New Firestone Tire

AKRON, June 1—The Firestone Tire & Rubber Co. is producing a new tire called the Firestone Supersize Cord tire.

Goodyear Men Move Up

AKRON, OHIO, June 1—Five executives of the Goodyear Tire & Rubber Co. were promoted this past week. C. M. McCreedy, former assistant manager of the Chicago district, is now special manufacturer's representative for that district; W. S. Boone, former supervisor of city sales in Philadelphia, is now special manufacturer's representative in New York; G. H. Barmore has been promoted from branch manager of Milwaukee to assistant manager of the Chicago district; A. J. Sear, who was branch manager at Sioux City, Ia., succeeds Barmore at Milwaukee and Sear's place is taken by W. S. Zigler, formerly city salesman in Milwaukee.

Pullman Raises Pay

YORK, Pa., June 1—Three hundred and fifty employees, including foremen of the various departments, have been granted a 10 per cent increase in wages by the Pullman Motor Car Co. The Pullman plant is turning out from 80 to 100 cars a week.

Two Companies in Reliance Factory

LANSING, MICH., June 1—The Tractor Producing Co. and the Duesenberg Motors Corp. have temporarily located in the plant of the Reliance Engineering Co. The Tractor Producing Co. makes four-wheel drive trucks and four-wheel drive tractors. But one type of each is being made, the tractor being confined to 30 hp. and the motor truck to the thirteen type. The company has confined its business exclusively to Russia and France since the war started. Officers of the company are: President, Mr. Morton; vice-

president, L. R. Williams, now in Japan; vice-president and secretary, Ralph Corley, New York; treasurer, David Dolan, New York. The Duesenberg Motors Corp. builds motors for submarine chasers, airplanes and tractors, and is affiliated locally in production with the Tractor company, which takes a certain per cent of the motors made by the Duesenberg corporation.

Nelson Factory Now in Production

DETROIT, May 31—Nelson cars are now being turned out by E. A. Nelson at the rate of 10 to 12 cars daily, with shipments in this number being made to distributors in all parts of the country. The factory in Detroit is concentrating on three types, a two-passenger speedster listing at \$1,200, a four-passenger at \$1,400, and a five-passenger sedan at \$1,800. The car has a four-cylinder valve-in-head engine, with a special Zenith carbureter.

Mechanics for Overseas Duty

DETROIT, June 2—The Cadillac Motor Car Co., Packard Motor Car Co., Hudson Motor Car Co., Ford Motor Co., Studebaker Corp., Chalmers Motor Co., Continental Motors Corp. and the Northway Motors Co. will each select certain mechanics from their organization to complete the plan of the United States Government to send 75 expert mechanics for a course of extensive training in the airplane factories of France. The Cadillac Motor Car Co. has also been requested to furnish two combination chauffeurs and mechanics to drive cars for the marine corps in France. The two drivers will be enrolled for the term of the

war with the rank of sergeant. They will receive \$38 a month with \$15 for extras and 20 per cent additional for foreign service. Their board and clothes and transportation will be furnished by the Government. The mechanics going to the airplane factories will receive \$4 a day and transportation and will retain a civilian status.

General Motor Gets Samson

NEW YORK, June 2—Tractor production on an extensive scale is being planned by the General Motors Corp., which has added the Samson Iron Works, Stockton, Cal., turning out about eighteen tractors a week. The new interests plan to enlarge the facilities of the Stockton plant and erect three other similar plants in various sections of the country, which will be ready for operation by the early spring of 1918. These plants will be located in Pontiac, Mich., near Kansas City, and at some point on the Atlantic Coast, the location of which is yet to be determined. By next October, General Motors will be producing fifteen tractors a day. By the time the new plants are finished, tractor production is expected to reach sixty a day. The Samson tractor is known as the sieve wheel tractor, the large drive wheels being of the Webb pattern, which it is claimed do not pack the ground.

Brown Licenses Spring Oiler Makers

CLEVELAND, June 2—The Brown Spring Oiler Co. has licensed the following concerns to manufacture spring leaf lubricators under its patents: Babbitt Spring Oiler Co., National Motor Supply Co. and Lazurus Mfg. Co. Two other companies shortly will be licensed.

Coming—THE SHOW CALENDAR—Events

Shows

Montreal, Can.....	Used Car Show, Coliseum.....	June 20-27
	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Spokane, Wash.....	Interstate Fair.....	Sept. 2-9
Milwaukee, Wis.....	Third Annual Fall, State.....	Sept. 9-15
	Fair Park, West Allis.	
Peoria, Ill.....	Peoria Exposition and International Farm Congress and Soils Exposition, tractor display and demonstrations.	Sept. 18-29
Dallas, Tex.....	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 12-28
Washington, D. C....	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Chicago, Ill.....	Championship.....	June 9
Detroit.....	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.....	Race.....	June 23
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.....	Championship.....	July 4
Tacoma, Wash.....	Championship.....	July 4
Visalia, Cal.....	Road Race.....	July 4
Spokane.....	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich..	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.....	Hill Climb.....	July 14

Des Moines, Ia.....	Championship.....	July 14
Missoula, Mont.....	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.....	Intercity Reliability.....	July 17-19
Intercity Reliability...	American Auto. Assn.....	July 17-19
Anaconda, Mont.....	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.....	Track Race, R. A. Hiller, Mgr.	July 22
Billings, Mont.....	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.....	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J....	Track Race.....	Aug. 17
Elgin, Ill.....	Road Race.....	Aug. 18
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.....	Championship.....	Sept. 3
Red Bank, N. J.....	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.....	Hill Climb.....	Sept. 8
Providence, R. I.....	Championship.....	Sept. 15
Allentown, Pa.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Uniontown, Pa.....	Speedway Races.....	Sept. 29
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.....	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.....	Race.....	Oct. 13
Richmond, Va.....	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13

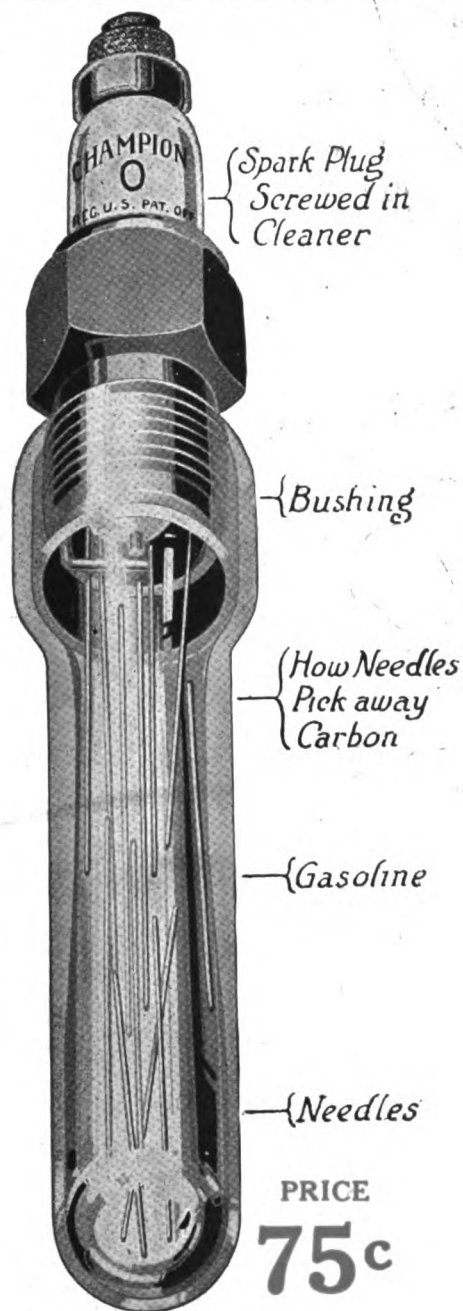
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Clean Your Plugs In A Jiffy

It's no trick at all now to clean and renovate your spark plugs.

The operation is so simple a child can do it.

The plug itself does not even have to be taken apart.

No dirt—no grease—no fussing and mussing with emery paper if you use the

CHAMPION "MINUTE" SPARK PLUG CLEANER

A whole set of plugs can be cleaned with a Champion "Minute" Cleaner in less time than it formerly took to get ready to do the task.

All you have to do is fill the tube half full of gasoline—screw the plug into the bushing at the end—and shake.

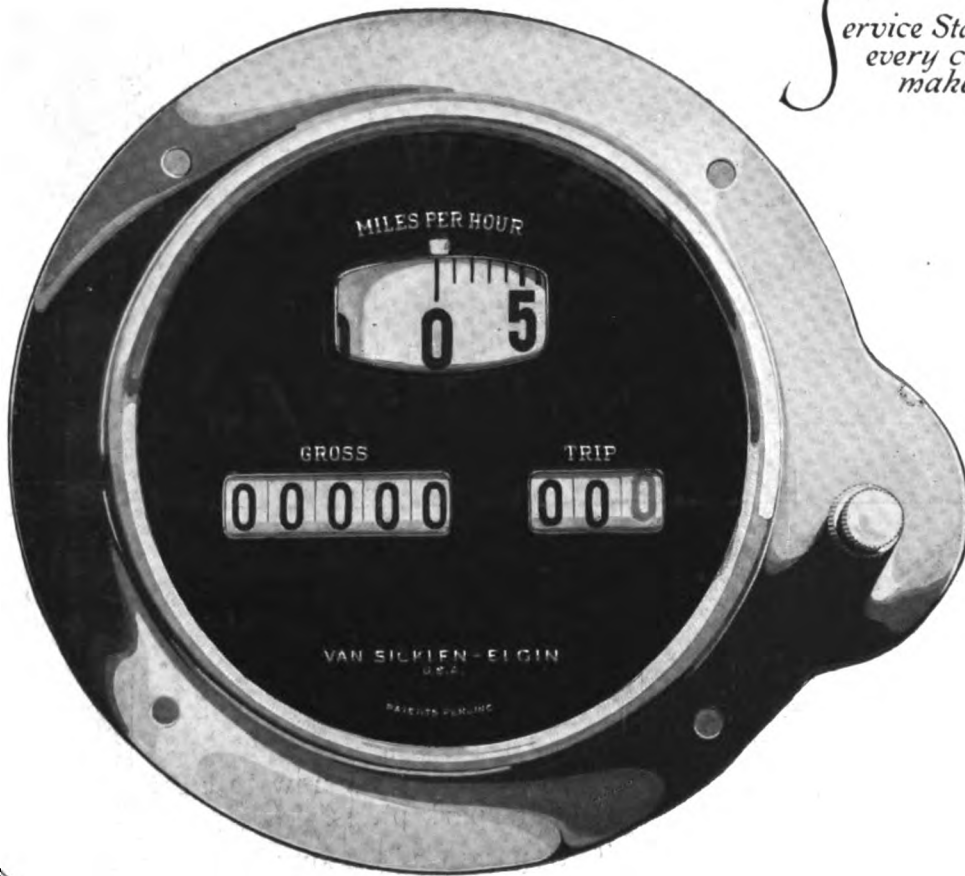
The gasoline dissolves the oil, and the needles in the tube pick the carbon clean from the porcelain. That's all there is to it.

Dealers are finding the Champion "Minute" Spark Plug Cleaner a real money maker. It's brand new and every motorist wants one. Better order your stock today.

PRICE
75c

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903 Upton Avenue Toledo, Ohio
Manufacturers of Champion Toledo Spark Plugs

*Service Stations in practically
every city in which your
make of car is sold*



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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

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NEXT WEEK

The first story in Motor World next week will be
 a comprehensive report of the World's Sales-
 manship Congress which is being held this week
 in Detroit. Watch for it.

Advertisers' Index on Pages 150-151



The Convenience of Reading the

CORBIN-BROWN SPEEDOMETER

has been greatly increased by the perfec-
 tion of the Maximum Speed Hand Attach-
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This device is an exclusive feature of the
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 other features of this instrument the Cor-
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 to keep his eye on the road. The hand can be
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 and worth the extra two and a half dollars in-
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BOYCE MOTO METER

Helps

No. 4—Special Literature

is supplied the trade also; also window displays, counter demonstrating stands, etc. Write your jobber.

¶ Boyce Moto-Meter sales are profitable for the dealer. No come-backs only in repeat orders. Any model may be attached to any car in ten minutes. If you are not handling Boyce Moto-Meters, we are both losers.

¶ Prices \$2.50, \$5.00 and \$10.00. Liberal trade discounts.

The Moto-Meter Co., Inc.
15 Wilbur Avenue
Long Island City, N. Y.



MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, June 20, 1917

No. 12

The Leader in the Line

Merchandising the Spark Plug as a Link to Other Accessory Sales

By S. Thornton Williams

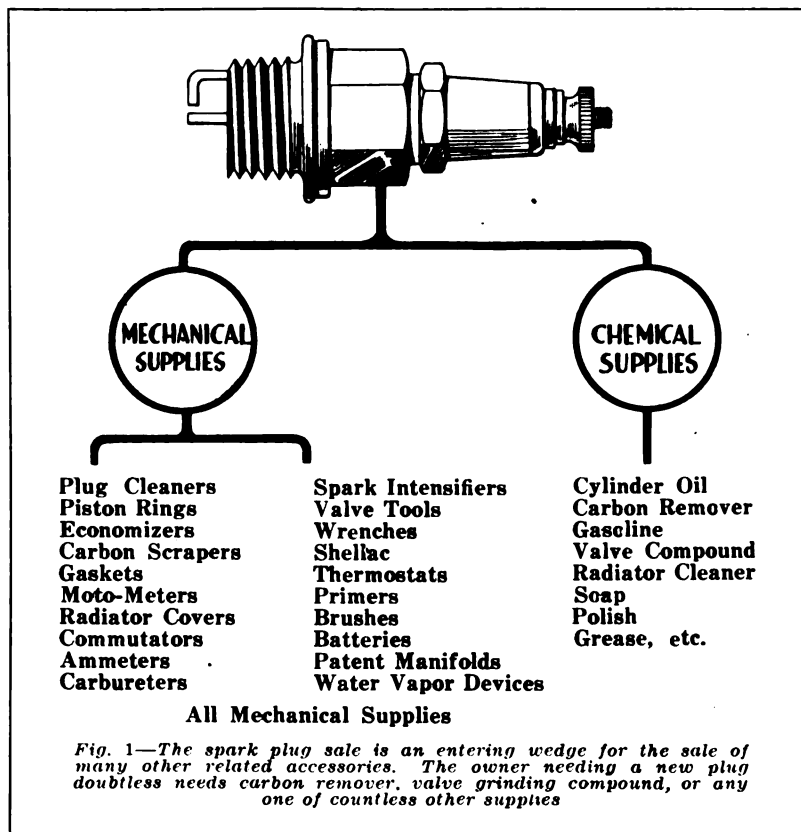
SPARK plugs fire the gas and make the car go. Likewise spark-plug sales may be caused to fire accessory sales—and make them go. This is because spark plugs have the quickest turn-over of any items on the dealers' shelves—and are logically linked to many other items.

To get down to fundamentals—poor engine performance *may* be due to poor spark plugs. But likewise it may be due to a cold engine, poor cylinder oil, poor carburetion, carbon, or any one of a dozen things. For each car model there is a plug, an oil and an engine accessory that gives best engine performance. The accessory salesman who can talk intelligently to the owner can sell him the plug that is best suited to his engine and is at the same time given an unexcelled opportunity to sell him a plug cleaner, carbon remover, or cylinder oil. *In the attempt he has at least sold an idea, and made a friend.*

For example, much

of the so-called spark-plug trouble to-day is caused by low-grade gasoline. It is evidenced by fouled plugs, loss of power, carbon, thinned-out lubricating oil, etc. Performance may be bettered and economy increased by the installation of radiator dampers, hot-air stoves, and radiator thermometers. Patented piston rings, cylinder oil, or new carbureters may be suggested. Spark plugs of themselves cause little engine trouble. The trouble is deeper seated, usually, and evidenced in the plugs. But, by the opportunity created by the spark-plug sale, the live dealer is given a peg on which to hang a whole series of sales arguments.

The chart, Fig. 1, shows some of the items that may be linked to spark-plug sales. They fall in two general classes—mechanical and chemical. Obviously, with each spark-plug sale, the salesman cannot suggest each of the items under each head. But if he knows the owner's car, its peculiarities,



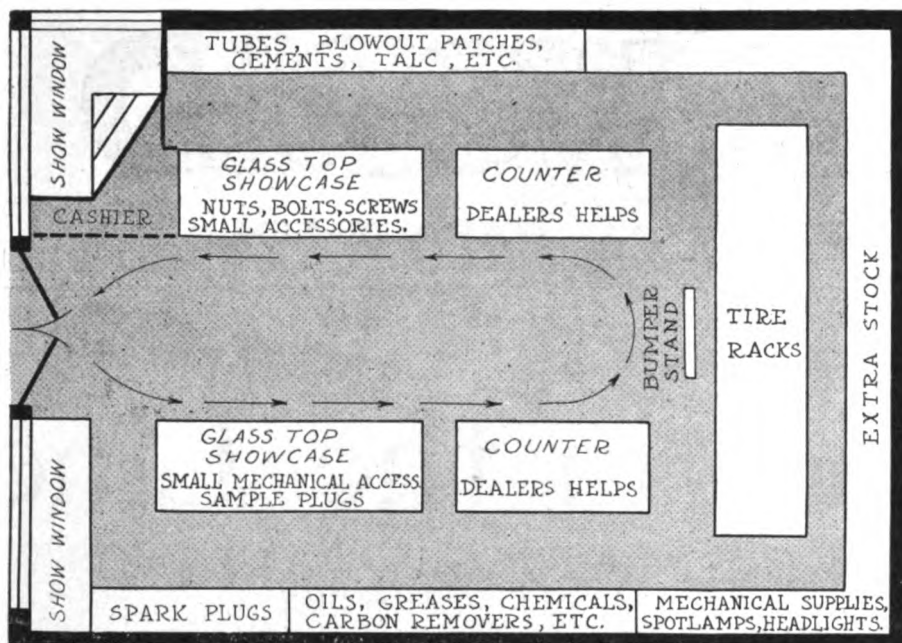


Fig. 2—An accessory store layout, built around the spark plug group. The arrows show the logical customer path

and some accessory that has solved some other customer's difficulty on the same kind of car, he can create desire and start a sale.

During the conversation several of the other items may be suggested as circumstances permit. But no item should be suggested unless it is definitely stated why it is of value, and why the customer should buy it for his particular car.

As the items listed in Fig. 1 fall into the same group, they should be placed as near together as possible on the dealer's shelves. The customer should be shown all the items without effort on his part; the salesman should be able to get them for him, without running all over the store.

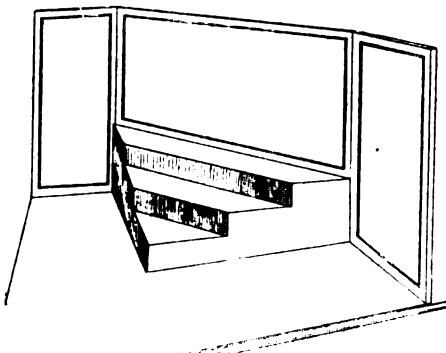
In Fig. 2 is shown an accessory store arrangement that is a composite of that used in many small stores—with special emphasis placed upon the arrangement of the spark-plug group.

The Logical Path

The logical path followed by the average customer is shown by the arrows. People are trained from childhood up to keep to the right—and naturally not wanting to walk farther than necessary, tend to stop at the first counter at the right. Here, therefore, is the logical place to put the spark-plug stock—and the place to put the other accessories falling into that group.

Several methods are followed in arranging and displaying the items in this group. The best is by the use of a glass showcase, containing the samples backed up by the shelves containing the sale supply of stock. The counter is shown at 1, Fig. 2.

This showcase is glass, with glass shelves. The front is devoted to samples of each of the plugs in stock, and to the



This shows how a series of steps can be arranged in a show window for displaying small parts



A spark plug display window of the Woodward Tire & Repair Co., Detroit. The live dealer cashes in on national advertising by the use of dealer helps

display of all items in the plug group. As these do not usually take up all of the case, the part toward the rear of the store may be used for displaying spotlights, headlamps and other quick selling and attractive accessories for which display is essential.

Toward the front of the store is the sale supply of plugs carried on the shelves. Two methods are common—one where the plugs are carried in sliding bins, together with a small supply of extra gaskets and porcelains, and the other where the plugs are placed in square divisions on the shelves. The former is shown in Fig. 3, and the latter in Fig. 4.

Segregated By Makes

In both cases, only one make and one type of plug are placed together—for example, the S. A. E. has one bin, or division, and the $\frac{1}{2}$ -in. standard of the same make another. The bins are numbered and labeled with the make and size of the plugs, together with the price.

As sample plugs are in view in the case, all plugs may be readily shown to the customer and placed in his hands without the necessity of disturbing the supply stock on the shelves or leaving the counter. This holds true with each of the other items in the spark-plug group.

Very little space is required for the spark-plug stock on the shelves. The average dealer does not handle over twelve different makes of plugs at the most. If a complete stock of several makes is carried, the S. A. E., the $\frac{1}{2}$ in. and the metric, in all the special shapes and with special terminals, about 48 bins will be the most that will ever be needed.

○				○
CAR	'15	'16	'17	Recommended
ABBOTT	S A E	S A E	S A E	BIN 121
ALLEN	S A E	S A E	S A E	BIN 122
BUICK	Spec.	Spec.	Plug & Terminal	

Fig. 5—A small card, like this, is an excellent guide to show what plugs are suitable for various cars and where they are kept

Usually, however, a much smaller number than that will hold the entire sale supply. A dozen plugs in each bin will be sufficient, as the front store shelves are too valuable to use for dead storage purposes.

The salesman should study the needs of the trade. Certain cars require special plugs, and plugs having special terminals. The Ford, for example, requires a long plug; the Buick plug has a special terminal, and, in fact, nearly every car has some particular type of plug that is best.

Plug manufacturers furnish lists of plug sizes for all cars, and these may be consulted to show the size of plug to use. But each accessory salesman should make up a personal list for himself, and include on it an abstract of his own or his customer's experience.

The plugs recommended for each car model are listed, as shown in Fig. 5. Then when a customer does not know exactly what plug he wants, the dealer can recommend one that has proven satisfactory, without trusting his memory

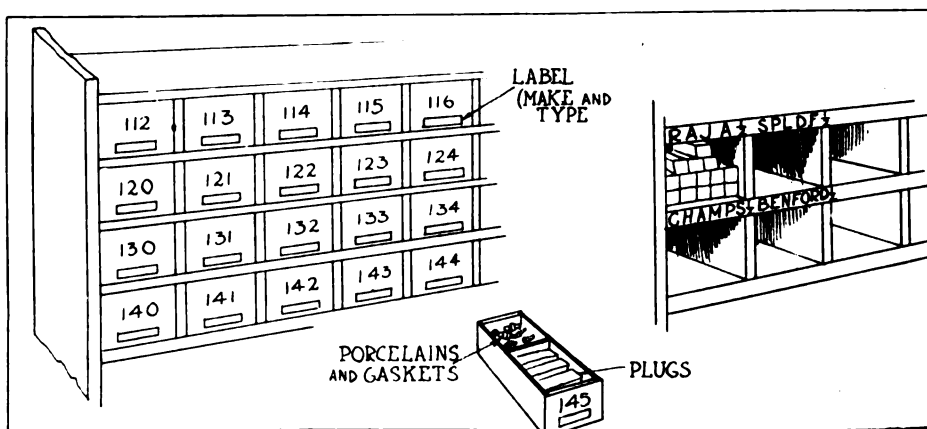
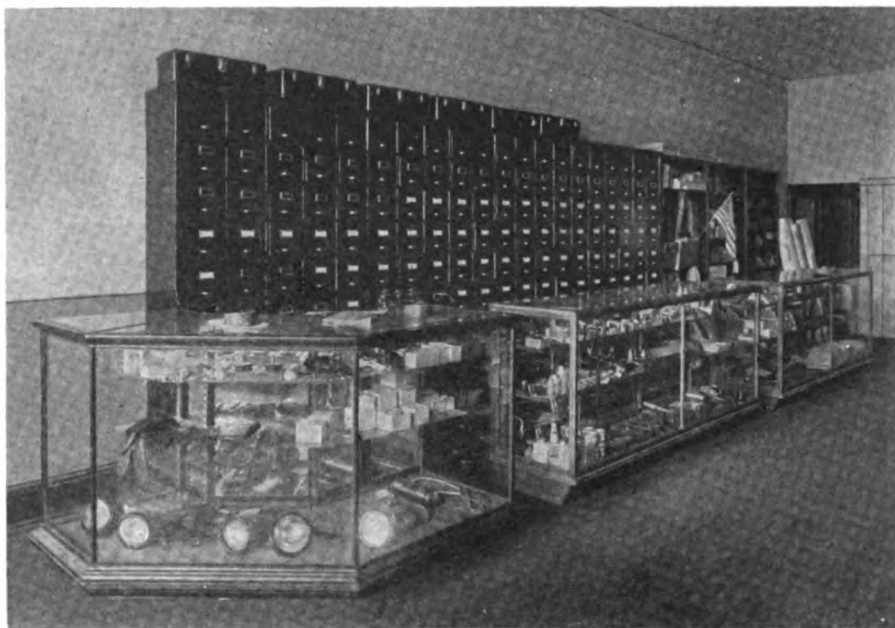


Fig. 3—At the left is shown the method of storing plugs in drawers and one of the drawers showing compartment for porcelains. Fig. 4, at the right, shows a series of small square bins



This is the new accessory store of the Detroit Tire Co., Detroit



The Woodward Tire & Repair Co., Detroit, accessory store has good merchandising arrangement

or taking a chance. The experience of the best salesman is available instantly to the least experienced man.

Dealer's helps or silent salesmen should be used as much as possible by the dealer, as should special window trimmings. Display in the accessory business is absolutely essential. The glass showcases should be used for the display of dealers' help as little as possible, because a clear view of the interior of the case is then impossible. The counters, numbered 3 and 4, in Fig. 4, are wood, and may be used for that purpose.

Next Week

The World's Salesmanship Congress is being held this week in Detroit. It is one of the most important gatherings of the kind of the year. Next week there will be a complete report of the meeting on these pages. Watch for it.

Food—The Big Problem

The Farmers Are Going to Have a Hard Time Getting Help and They Must Be Helped

GREAT BRITAIN and France and Italy are looking to the United States for food. And America must feed herself. It is going to be a tremendous task for the American farmer to feed America and America's Allies, too.

It is now estimated that the total production of wheat in the United States this year will be about 656,000,000 bushels. Every year the United States needs for home consumption some 620,000,000 bushels. But this year we shall have to send the Allies at least 200,000,000 bushels. And there is only a very small reserve because last year the wheat crop was shorter than usual.

Even leaving out of consideration other crops such as corn, which really is the bumper crop of the country, and oats and other grain and vegetables, the farmer is going to be up against it to get his crops to the markets.

Every year there is a shortage of labor through the grain belts. Heretofore it has been largely possible to

supply the demand from the unemployed. This year the army draft is going to deplete the army of the unemployed and the farmer must look elsewhere for the help he must have.

Where is he going to get it? He is going to get it by borrowing it from other fields. Temporarily, at least, there is going to be a big shift of labor from some fields to others. Every business has got to prepare for such a shift.

Practical preparedness will very greatly reduce any bad effect which such a shift of labor might have in partly crippling other activities. Dealers, garagemen and repairmen are going to be affected just as much as every other branch of industry. Dealers, garagemen and repairmen, too, can work now to offset the effect of such a call for help when it comes. Here are five things that can be done now:

5 Things You Can Do Now

1—Organize to help the farmer keep his tractors and other farm machinery going.

All the garagemen or repairmen in any city in the farm belt or in neighboring cities can get together; each supply one good mechanic capable of adjusting and repairing tractors and farm implements. Then appoint one garage or repair shop as headquarters and send out letters to all farmers letting them know that they can get quick service by applying at these headquarters. When a farmer wants help, headquarters can phone any shop which has appointed a man for this work and the man should leave immediately for the seat of trouble.

2—Organize oil and fuel delivery service.

Let the dealers get together and form an association to supply the farmers' oil and fuel needs. Arrange so that oil and fuel ordered by any farmer is delivered immediately by a system, the expense of which is borne jointly by all in the association. This would eliminate duplication of effort and help the farmer.

3—Organize a delivery system from local stores to farmers.

If a farmer has to take a man out of the fields to send him to town, another man has got to take his place. Arrange among you so that the local stores can get their goods out to the farmer quickly and men won't have to be taken out of the fields for such work.

4—Organize for systematic tractor inspection.

Organize a force of five or six expert mechanics from as many shops to make periodic inspection of all tractors, say once a week, make minor adjustments and repairs and advise where replacements and extensive repairs are necessary. A stitch in time saves nine.

5—Organize for the delivery of crops to the railroads.

Get together and arrange with the farmers for a definite schedule of deliveries and then arrange so that the necessary motor trucks are supplied to convey the crops to the railroads.

To Standardize Tractor Service

KANSAS CITY, June 9—The Kansas City Tractor Club is taking up the subject of tractor service, with special reference to the charges that should be made. The tractor business has grown so rapidly, it was suggested, that many different systems of making charges have developed, and there is need for uniformity. It was also suggested that the giving of so much service free, as has often occurred, is demoralizing to the tractor trade, in that it conveys false ideas of values. At the recent monthly meeting of the Tractor Club the subject

was discussed, and there was a consensus of opinion that, coincident with a general effort to improve tractor service, there should be instituted a system of charging for service.

Remys To Make a Tractor

INDIANAPOLIS, June 11—The Remy Brothers Tractor Co., which will build a plant at Kokomo, Ind., has been incorporated with a capitalization of \$500,000, all stock being fully subscribed. Frank and Perry Remy of Indianapolis, formerly of Anderson, Ind., where they established the Remy Magneto Co., are the

president and secretary-treasurer, respectively, of the new company. Elwood Haynes, president of the Haynes Automobile Co. and A. G. Seiberling, general manager of the Haynes company, are stockholders in the tractor company.

The company now is negotiating for the purchase of a large factory site and it is expected that the work of erecting a plant will be started in the near future. The company intends to place about twenty-five tractors on the market this year, but after the first year production is to be undertaken on a much larger scale.

How to Make Money on Used Cars



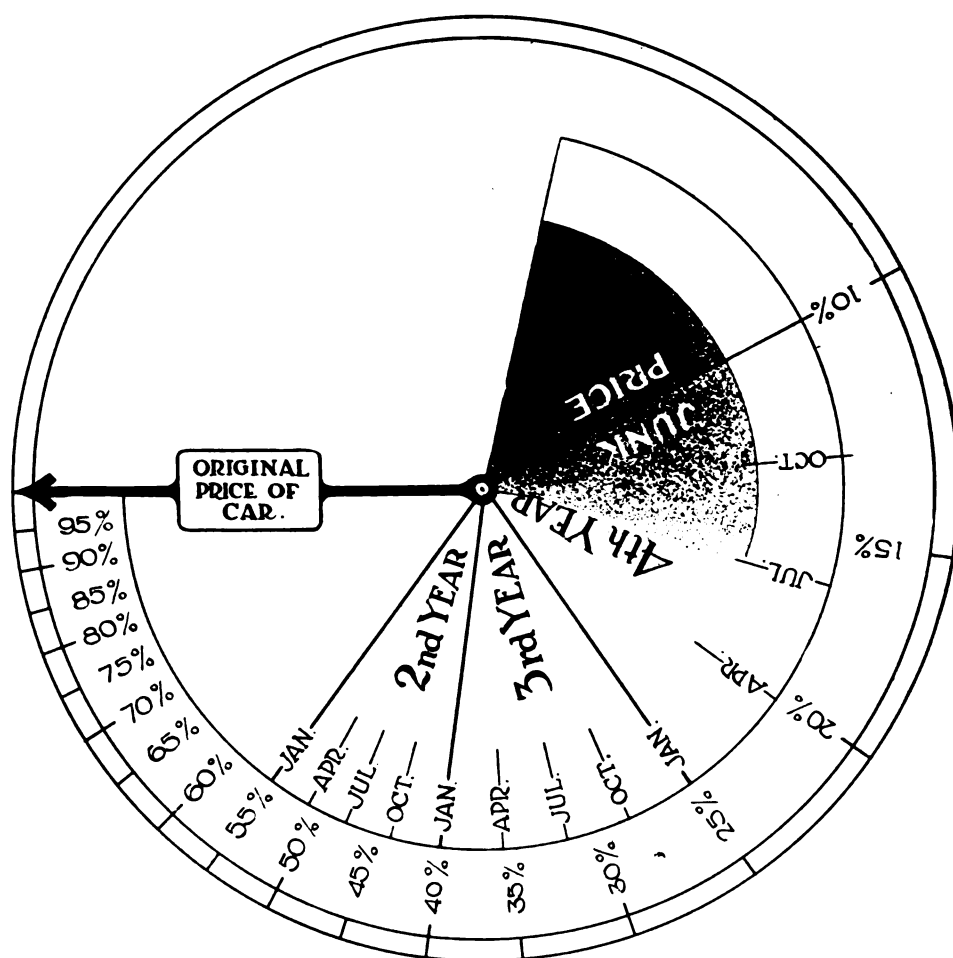
BACKBONE is the first step to success in the used car business. Backbone helps the dealer adopt a sane business plan. Backbone helps him stick to this plan and operate it. Backbone helps the dealer to put his profits into his own instead of the customer's pocket.

Read on the two following pages—10 and 11—more about the Motor World Used Car Business Plan. If this plan will turn your losses on used cars into profits, there is only one businesslike thing for you to do, and that is to adopt the plan, make it work, and put your profits into your own pocket.

What YOU

Must Do to Make Money on Used Cars

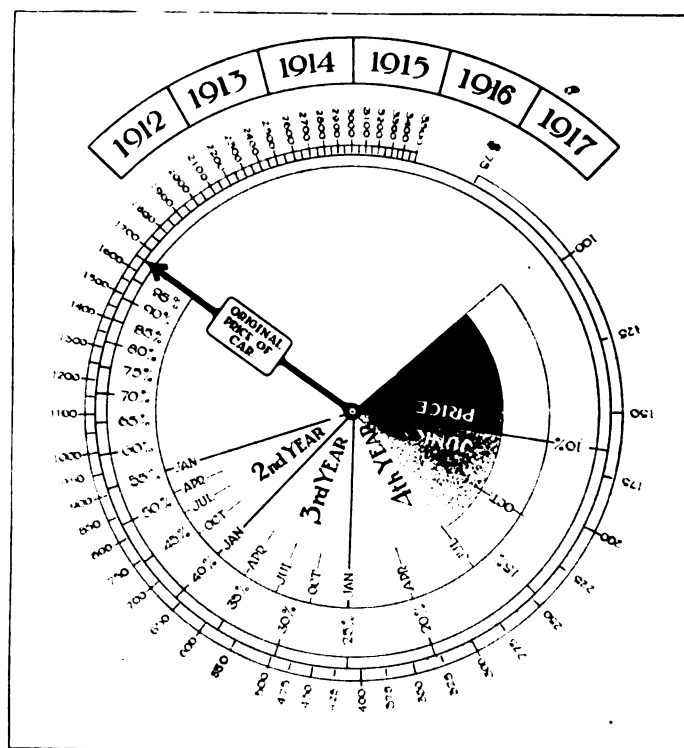
CERTAIN things **MUST** be done by all dealers if they are to solve their used car problem. What these things are was determined through an extensive investigation made by Motor World. At the same time the depreciation in car prices was worked into chart form; the chart has appeared twice and is shown in miniature at the bottom of this page. The large illustrations on these pages are a device for the quick figuring of the percentages found on the chart. But to make money on used cars

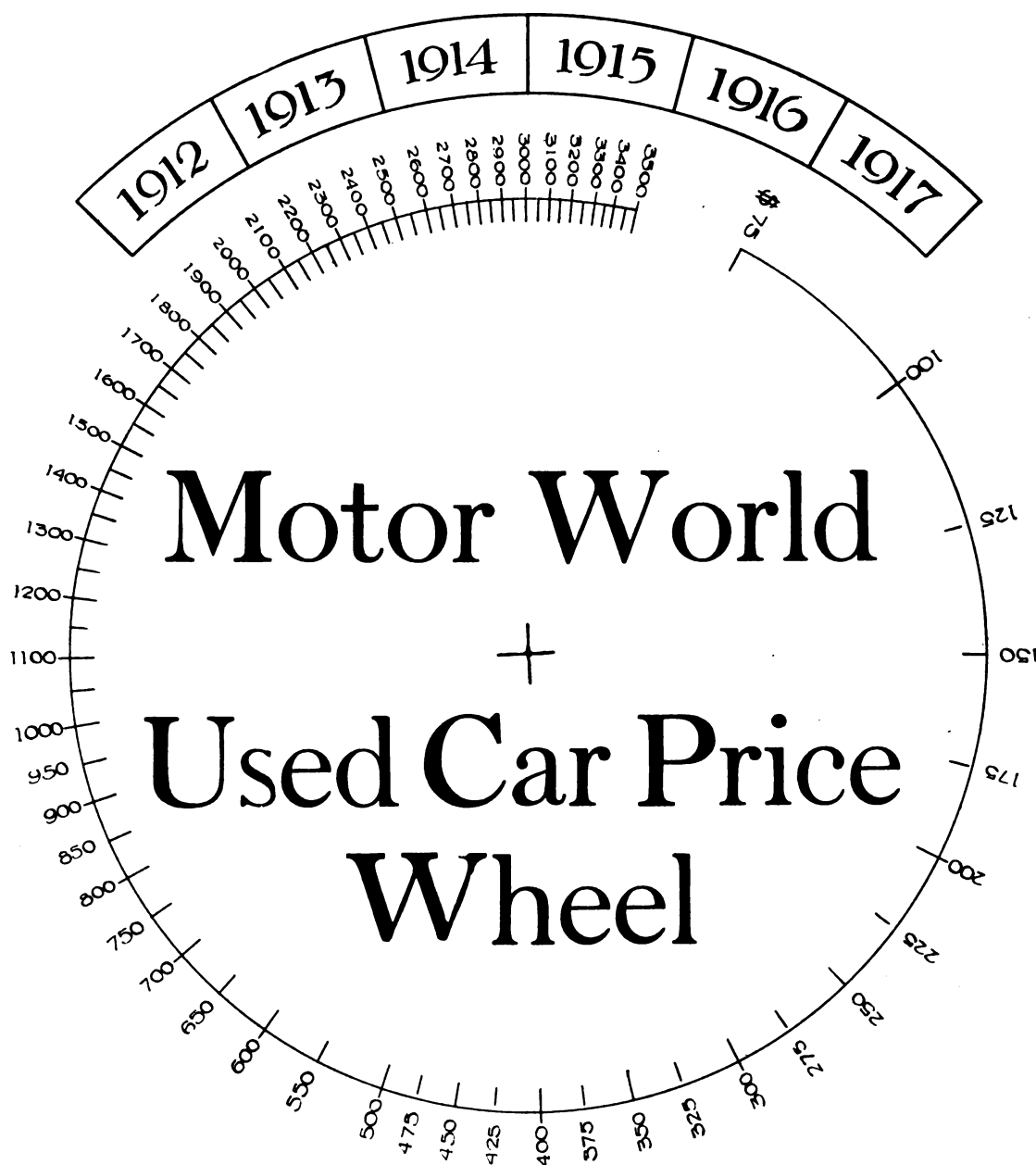


- 1—Make used cars a business, not a problem. Give thought to them, just as you give thought to handling your new cars. Don't try to dodge the used car question. It can't be done. Take hold of it like a man and SOLVE IT.
- 2—Make a profit on your used cars. It is a ridiculous business procedure to allow used cars to create a loss which the new cars must pay.
- 3—Trade scientifically, not on a guesswork basis. Trade for what you KNOW the car is worth.
- 4—Fix 'em or junk 'em. Put every traded car in usable—not merely salable—condition—or else handle it only at a junk price, which is what the junkman or used car dealer will give you for it.
- 5—Become a used car expert. This sounds hard, but it is easily accomplished if you take hold of the situation firmly and give thought to it. That's how every expert became an expert.
- 6—Study the LAWS OF USED CARS. These were printed in Motor World May 30; they will be printed at other times in the future and others will be added.
- 7—Know your costs. If you don't know what it costs you to handle used cars, and if you don't what it costs to fix them up, how can you expect to know anything at all about this phase of your business?
- 8—Have BACKBONE. You must run your own business, not let the customer run it. You must NOT pay more for old cars than they are worth. You must put your profits into your own pocket, not into the customer's.

Below

is shown the wheel complete, after the parts are put together. It is set to show the value of a used car originally selling for \$1,650.





Cut this disk out and paste it onto a similar sized disk of cardboard, wood, tin, sheet aluminum or some similar thin material. Then cut out the disk on the opposite page and paste that. Then, mount the little one on the big one and put a rivet or pin of some kind in the center. The lower part of the page tells how to work the device.

After mounting the wheels, cut these directions in half in the center, put the right half below the left half, making one column of it, and paste the directions on the back of the larger wheel.

How to Use the Motor World Used Car Price Wheel

1—On the table of years "1912, 1913," etc., at the top of this chart, put your finger on the "yearly model" of the car. Count "one," and continue counting around clock-wise until you hit "1917." If, when you hit "1917" your count is "three," which would be the case with a 1915 car, your car is in its third year.
 2—Set the pointer on the inner wheel at the original list price of the car, shown on the outside wheel.
 3—Look at the "third year" space on the inner wheel and find the "month line" nearest to-day. It is "July 1"
 4—From this "July 1, 3d year" look to the figure on the outer wheel. This will represent the "as is" value of the car
 For example: If the car was a 1915 it is in its 3d year. If it cost \$2,000 and the pointer is set at \$2,000, the "July 1" line will be about 33½ per cent, and this will be opposite about \$665. The wheel should not be moved during paragraphs 2, 3 and 4

5—You wish to add 40 per cent to this \$665 for value added through overhaul. Place the pointer at \$665
 6—Look back on the inner wheel to 40 per cent
 7—Look to the outer wheel at this point and you will be close to \$265
 8—Add this \$265 to \$665, which gives \$930, and you have the price you may expect to get for the car after it is fixed up
 9—You wish to deduct 10 per cent for profit, 5 per cent for salesman's commission and 20 per cent for overhead, a total of 35 per cent. This will leave 65 per cent of the \$930
 10—To find 65 per cent of \$930 set the pointer at \$930 and look back on the inner wheel to 65 per cent. The outer wheel shows this to be \$600
 11—Now, deduct what it will cost to overhaul the car, say \$50, and you have your ALLOWANCE, which is \$550.
 Note: While the wheel is laid out to fit the BLACK LINE on the Used Car Price Chart it may be used to figure any percentages, as explained in paragraphs 9 and 10

Accessory Sales Are Normal

Jobbers Report Gain of 54% During First Four Months of 1917 in Spite of War and Weather

THE jobbing trade is the natural barometer of conditions in the retailing industry. If the jobber's business is good, the dealer's business, as a rule, is good. With this thought, Motor World addressed a questionnaire to 300 jobbers, and this article is based on their answers. Here are the questions that were asked:

- 1—What percentage of gain or loss do your sales figures show for the first four months of 1917 as compared with 1916?
 - 2—How does April, 1917, compare with April, 1916?
 - 3—Are your dealers buying in normal quantities?
 - 4—In what sections do you find the greatest increase or decrease?
 - 5—What is your opinion regarding sales prospects for the remainder of 1917?
-

By Stanley P. McMinn

THE accessory jobbing business is good all over the country. Every section has made a substantial gain in volume of business for the first four months of 1917, despite the depression which has resulted from the war, and despite a more than ordinarily slow-opening season.

January, February, March and April show an average gain of 54 per cent in volume of sales over the corresponding period last year. The month of April alone shows an average gain of 62 per cent. Of the 101 jobbers who answered the questionnaire sent out by Motor World only two report a falling off in sales. Both of them report a loss of 10 per cent and in both cases this is attributed entirely to inability to get goods from manufacturers.

The gain for the first four months of 1917 varies from as much as 300 per cent in individual cases to as little as 4 and 6 per cent. The higher figure was reported in two instances, but was not used in computing the average gain of 54 per cent. The low figure also was reported in two cases, though this number is so small that it has had little effect on the general average.

Normal Buying Prevails

For the most part, retail dealers are purchasing in normal quantities. Eighty jobbers state that goods are moving out at what may be considered a normal rate. Twelve state that buying has been somewhat restricted. These latter reports

come from San Francisco, Danver, Ill., New Orleans, New York, Charleston and Milwaukee.

The San Francisco jobber states that customers are buying very conservatively in northern and southern California and that this is due in part to the higher prices which have gone into effect. From New York comes the report that dealers on Long Island are slowing up somewhat in their purchases, though no specific reason is ascribed for this.

This slightly pessimistic note is shared by but a very few jobbers. With few exceptions good increases are expected for the remainder of the year, though some hold the opinion that it may be 90 days before such an increase will make itself felt. Some jobbers are frank in their statements that they expect a falling off due to the war scare. These, however, are more than offset by those who hold the opposite view.

Hard to Get Shipments

There has been considerable difficulty in getting shipments through from the factories, and though there has been some relief during the past month, most jobbers are none too optimistic for the immediate future.

Just how much of the increase in volume of sales can be traced to the generally higher prices which prevail it is difficult to estimate. That this has had an important bearing, however, there can be no gainsaying, for in a number of instances jobbers report that though

there has been a decrease in the number of orders filled there has been a slight gain in the value of sales.

Jobbers who bought heavily late last fall in anticipation of the rise in prices appear in an enviable position, for in addition to profiting by the price increase they are in a position to make prompt shipments and thus to hold their trade.

Watching Credits Closely

The matter of credits is giving cause for apprehension. One jobber states that he is watching credits much more closely than usually and several others state that collections show a tendency to be slow because of the generally unsettled conditions. This feeling, however, appears to be confined to the Eastern seaboard.

It is pointed out by one jobber that any depression along the Atlantic seaboard, and possibly along the Mexican border, will release additional quantities of merchandise for the Western states and that this will effect a balance.

In the Western states the outlook is particularly promising. One reason for this is that crop reports now indicate better harvests of grain staples than were at first promised by government experts. Another is that even though crops are slightly shorter, prices are considerably higher and the farmer will receive at least as much for his produce as last year and perhaps a little more. The farmers in general are prosperous and are buying freely, though the late

spring has curtailed the use of cars to some extent.

That weather conditions are bound to have a more profound influence on sales than will the war is the general sentiment from all over the country. The fact that the great Liberty Bond issue which is being floated by the government represents money which will be put into active circulation is coming to be more generally realized and is having a good effect in offsetting the otherwise depressing effect of the war.

In this respect a Middle West jobber states: "We do not think that war, conscription and other matters of national importance that are attracting much attention have anything to do with slow business in April. We believe that the balance of 1917 will show at least a normal increase over the same period in 1916 and probably even more than a normal increase.

"This, we think, will be brought about by further rising markets and a large increase in the number of cars sold. The

floating of the government loans will no doubt result in greater activity in the markets. This will mean easier money, and easier money encourages heavier buying."

Buying from hand to mouth, so to speak, is becoming more general. There is a notable disinclination to stock heavily. The increasing number of small orders naturally is tending to increase overhead because of the greater amount of clerical work necessary. However, there has been no complaint on this score.

99 Jobbers Report Average Gain of 54%

Jobber	Gain % First Four Months, 1917	Gain % April, 1917 Over April, 1916	Jobber	Gain % First Four Months, 1917	Gain % April, 1917 Over April, 1916
Alabama					
Moore-Handley Hardware Co., Birmingham...	50	...	Nebraska		
California			U. S. Rubber Co., Omaha.....	30	same
Campbell-Collins Co., San Jose.....	33	30	Powell Auto Supply Co., Omaha.....	25	...
Weinstock-Nichols Co., San Francisco.....	32.3	34	Nebraska-Buick Auto Co., Lincoln.....	33	25
Auto Tire Co., San Diego.....	28.3	25	U. S. Auto Supply Co., Omaha.....	100	85
Western Rubber & Supply Co., Los Angeles..	27.08	22.3	New Jersey		
Chanlor & Lyon Co., San Francisco.....	25	good	Economy Auto Supply Co., Newark.....	40	...
Waterhouse & Lester Co., San Francisco....	32	26	New York		
Florida			Whittemore-Sim Co., New York.....	33	40
G. N. Baughman Co., Tampa.....	40	38	U. S. Rubber Co., New York.....	15	20
Georgia			H. A. McRae & Co., Glens Falls.....	50	60
Elyea-Austell Co., Atlanta.....	4	gain	Martin-Evans Co., Brooklyn.....	46	45
Illinois			Barker-Rose & Clinton Co., Elmira.....	125	100
Motor Car Supply Co., Chicago.....	Inc.	Inc.	Motor Car Equipment Co., New York.....	65	50
E. B. Collins Co., Danver, Ill.....	...	25	A. J. Picard & Co., New York.....	110	100
Chicago Auto Supply House, Chicago.....	50	25	S. B. Roby Co., Rochester.....	40	40
Automobile Supply Co., Chicago.....	70	60	Meyers Hardware Co., Plattsburg.....	33	25
Graham-Seitzer Co., Peoria.....	21	12½	North Carolina		
Western Electric Co., Chicago.....	†10	...	Carolinas Auto Supply Co., Charlotte.....	300	300
National Electric Supply Co., Peoria.....	34.8	25½	North Dakota		
Beckley-Ralston Co., Chicago.....	33-40	slight	J. D. Grant, Fargo.....	same	same
Indiana			Ohio		
Doherty, Sheerin & Co., Indianapolis.....	normal	...	Tracy-Wells Co., Columbus.....	20	Inc.
Central Rubber & Supply Co., Indianapolis..	33	25	Griswold-Sohl Co., Columbus.....	112	142
Iowa			Bostwick-Braun Co., Toledo.....	40	40
Herring Motor Co., Des Moines.....	70-100	...	Wagner Hardware Co., Mansfield.....	20	20
Sieg Co., Davenport.....	35	46	M & M Co., Cleveland.....	35	35
Kansas			Justus & Parker Co., Columbus.....	50	100
Lee Hardware Co., Salina.....	62	...	Ohio Rubber Co., Cincinnati.....	33	33
Thompson Hardware Co., Topeka.....	20	25	Toewater & Co., Cincinnati.....	25	33
Southwick Auto Supply Co., Topeka.....	40	50	Pennsylvania Rubber Co., Cleveland.....	50	33
Auto Supply & Tire Co., Wichita.....	115	133	Oregon		
Hagberg Auto Supply Co., Wichita.....	25	25	Ballou & Wright, Portland.....	30	same
Kentucky			Nichols, Dean & Gregg, St. Paul.....	45	80
Louisville Auto Supply Co., Louisville.....	Inc.	...	Archer & Wiggins & Co., Portland.....	45	60
Harbison & Gathright, Louisville.....	100	100	Pennsylvania		
Louisiana			Berrodin Rubber Co., Philadelphia.....	50	60
Electrical Appliance Co., New Orleans.....	Inc.	10	Beers Brothers Co., Oil City.....	250	209
Maine			Logan-Gregg Hardware Co., Pittsburgh.....	30	Inc.
N. H. Bragg & Son, Bangor.....	50	Inc.	U. S. Rubber Co., Pittsburgh.....	20	same
Darling Automobile Co., Auburn.....	25	20	George W. Nock Co., Philadelphia.....	20	Inc.
Rice & Miller Co., Bangor.....	32	350	J. H. McCullough & Son, Philadelphia.....	40	100
Michigan			Gaul, Derr, & Shearer Co., Philadelphia.....	40	20
Cumings Brothers, Flint.....	55	25	Rhode Island		
E. A. Bowman Co., Detroit.....	100	100	Waite Auto Supply Co., Providence.....	25	Inc.
Tisch Auto Supply Co., Grand Rapids.....	6	30	South Dakota		
Massachusetts			L. & L. Motor Supply Co., Sioux Falls.....	100	100
American Motor Equipment Co., Boston.....	66	50	Dakota Iron Store, Sioux Falls.....	same	5
Iver Johnson Sporting Goods Co., Fitchburg..	25	25	Tennessee		
U. S. Rubber Co., Boston.....	75	100	Southern Auto Supply Co., Chattanooga.....	30	66
Post & Lester Co., Boston.....	25	25	Texas		
Boice-Perrine Co., Boston.....	58	20	Electric Appliance Co., Dallas.....	158	Inc.
Minnesota			The Walter Tips Co., Austin.....	normal	normal
C. J. Smith Co., St. Paul.....	10	20	Hawkins Auto Supply Co., Houston.....	17	14
Western Motor Supply Co., Minneapolis.....	46	60	The Fisk Co. of Texas, San Antonio.....	70	56
Reinhard Brothers, Minneapolis.....	44	40	Utah		
Farwell, Ozmun, Kirk & Co., St. Paul.....	25	15	Inter-Mountain Electric Co., Salt Lake City..	11.8	3
Kelley-How-Thomson Co., Duluth.....	33	93	Virginia		
Missouri			Piedmont Hardware Co., Danville.....	Inc.	20
Richards & Conover, Kansas City.....	40	40	Talman Auto Supply Co., Richmond.....	33	33
Bonniwell-Calvin Iron Co., Kansas City.....	40	25	Washington		
Missouri Auto Specialty Co., St. Louis.....	†10	...	Automobile Supply Co., Tacoma.....	42	36
Motor & Machinists Supply Co., Kansas City.	45	40	Wisconsin		
			Auto Supply Co., Milwaukee.....	15	20
			Shadbolt & Boyd Iron Co., Milwaukee.....	52	...

†Loss.

War Changes Business Conditions

It Has Become a Thing of Industry and Commerce and Business

By Newton D. Baker

Secretary of War

WAR is going to have a profound effect on industry. It is going to mean a great but gradual alteration in every business. "Business houses are not going to be able to do as they used to do, many ways; workers in industrial establishments, farmers who are tilling their fields, everybody is going to be asked to give up, or, at least, to permit the temporary obstruction of some of their deeply imbedded habitual modes of action, and thought; and in consequence, we are all going to be in a more or less disturbed state of mind."

This is what Secretary of War Baker told the Editorial Conference of Business Papers in Washington recently. He made very plain that we are all going to be jarred out of the habits of a lifetime—but that the jarring is going to be for our own good and for the good of our industries.

"In Washington you find a totally different situation from any you have ever seen here before," he said. "Washington differs from most of the capital cities of the world in that it is a residential city, as distinguished from an industrial or a manufacturing city, in that it is distinctively a capital city, rather than a large and metropolitan center of a country.

Electrified With Energy

"And yet when you come here to-day you find Washington no longer a place of beauty only and of calm dispatch of an ordered and allotted public business, but you find it electrified with energy, you find it full of business, you find that the eyes of the business world are centered now on Washington, and all other great centers of industry and commerce and business are merely tributary or sub-centers to the concentration of the business of America in this city of Washington.

"Now, why is that?

"It is because war has become a thing of industry and commerce and business. It is no longer Samson with his shield and spear and sword, and Goliath with his sling; it is no longer selected parties representing nations as champions, and in physical conflict one with the other, but it is the conflict of smokestacks now. It is the combat of the driving wheel and of the engine, and the nation or group of nations in a modern war which

is to prevail is the one which will best be able to co-ordinate and marshal its material, industrial and commercial strength against the combination which may be opposed to it.

"The character of war has changed, not only in the manner I have suggested, but it has changed in the place in which it is fought. There is no longer beating of drums and marching of bands and unfurling of flags across wide areas, with men going around mountains and meeting one another and fighting upon an open plane, but so far as land warfare is concerned, it is fought by men who never see one another's faces; it is fought by the use of weapons which are trained to indirect fire, and the mathematical and scientific processes by which observation is translated in the aiming of a modern high-powered gun, filled with science and accurate knowledge; but that is only the land end.

Skies Filled With Warriors

"The very skies are filled with warriors now, and the underseas as well; and so we see that at least a part of the mechanical progress which has been made by mankind has been drafted into the making of what is now called the lethal weapon of war, and here in Washington we are undertaking now to marshal the genius and the vitality and the courage of a great peace-loving people, in order that they may throw their preponderating weight as a unit in this scale and rescue peace for the world.

"The world must have peace. The present war is costing something more than sixty million dollars a day in money—probably nearer a hundred million—and more than ten thousand lives of

human beings a day, and every day the war continues the world is that much poorer in its accumulations, in its resources, and in its men. I think that all believe that every resource was exhausted before our entry into this war took place, and I think every thinking man will agree that there is now no way to re-establish peace on this troubled and bereft planet, except by the exercise of the superior force of the United States.

The Evangels of Peace

"So that we start into this war as the evangels of peace; we are mobilizing the industry and the resources of the United States in order that they may secure peace for the world. Every conflict we have among ourselves, every dissent which we allow to be pressed beyond the point of the expression of opinion, which is necessary to secure wisdom, every division which we allow among ourselves delays the achievement of the great object of this war.

"It is not possible to take the industrial, commercial, agricultural and social life of a nation of 110,000,000 people and divert them out of their normal courses, without creating here and there confusion and without breaking in upon the long-established and deeply cherished habits of great numbers of men.

"Now, it may not have occurred to you, but the thing that human beings like the least is to have their habits disturbed. We will stand almost any other kind of inconvenience with less complaint, but just try some morning eating your breakfast in a chair that is different from the one you ordinarily eat in. Just try sitting at a different

Coming in This Series

Business Will Be Good But Different.....	June 20
Are You Studying National Business Changes?	June 27
Are You Planning for Business Changes?	July 3
Are You Adjusting to Business Changes?	July 10

place at your own breakfast table. Try coming down the back stairs, if you are accustomed to going down the front stairs and see whether it does not disarrange your program most of the day and give you a sense of an unusual start, or something that has happened to you that is out of the normal, and if you are not constantly asking your mind to examine and see whether the switches on your day's track are really set right.

"The greatest asset we have is our habits; it makes unnecessary separate reasoning operations for a great variety of things which we are compelled to do daily, and it is not until we have converted an operation into a habit that it becomes an asset.

Some Fundamental Changes

"Now, in this mobilization of the people of the United States we are going to jar their habits. *Business houses are not going to be able to do as they used to do, many ways*; workers in industrial establishments, farmers who are tilling their fields, everybody is going to be asked to give up, or, at least, to permit the temporary obstruction of some of these deeply imbedded habitual modes of action and thought, and, as a consequence, we are all going to be in a more or less disturbed state of mind; things are not going to be as they usually are, and so our minds are going to be filled with questions as to whether the things which are in an unusual state are in a right or a profitable state.

"*Some of the reorganizations and readjustments in trades are going to be quite fundamental and profound*, and the disturbance of the line of habit and normal business is going to be exceedingly unusual and difficult of rapid adjustment. Now, if your journals, catching the spirit of the community of enterprise, will preach to those who read your papers and who are influenced by them, and whose modes of thought are controlled by them—if you will preach to them the constant doctrine of the necessity of the sacrifice of habit, in order that there may be community of enterprise in this new undertaking, if you will just take the trouble to analyze the creaking which the machine develops in the process of readjustment, and point out in a large view how unnecessary it is that these things should be, if you will calm the apprehensions and spur the courage and determination of your clientele, you will have it in your power to make a contribution to this aggregation of our industrial and other resources in a common cause, which will be second to no contribution made by any group in the country.

Criticism Should Be Constructive

And I am not asking you to forbear criticism. A declaration of war is always a declaration of an open season for critics, and that is rather fortunate. There are no perfect people, and all of us who are imperfect are anxious to have their imperfections called to our attention, so that we can be more on guard against them, and people who are

exceedingly busy about great tasks are quite likely to allow their natural imperfections to run away with them, while they are absorbed about other things, so that criticism is helpful.

"But make it constructive. There is a man in my country from whom I learned more than from any man I ever knew, I think. He bought a house in the country, and decided that it needed a new roof. It was a very humble place, and as soon as he decided that the existing roof would not do he got a ladder and got up on the roof and tore it all off; and when he got down to the bottom of the ladder he realized that he had not yet thought of buying a new set of shingles, and it was a long time before he could either get the money together or get his friends to bring the new shingles out to him, and in that time the rains came and the winds blew, and every makeshift device that he could provide did not keep him from catching cold and ultimately dying from exposure. Make your criticism helpful and constructive; point out the way to do it right when you discover that it is being done wrong, and do not spare us who are here charged with responsibility, if after you have pointed out the right way to do it, we persist obstinately in continuing to do it the wrong way.

Pull Civilization Out of the Fire

"America has a chance to match her wits against the wisest people in the world now. Our inventors who have loaded the Patent Office from garret to cellar with the most brilliant manifestations of ingenuity that the human mind has ever seen, in times of peace and pleasantness, are now summoned to do their very best in order that American ingenuity may be contributed as a great national asset. Our industrial captains, and our great commercial people, our farmers, all of us from the most important to the least of us in all trades and occupations now have an opportunity to put our hands on the rope that is pulling civilization out of the fire. If when this war is over and there assembles in some stately place and around some marble table a company of men to make peace; if at that table there sits a man who is entitled to speak as the representative of an America which has co-ordinated itself, and demonstrated to the whole world the invincibility of a democracy like ours; if, from the section at that table at which America sits an authoritative and compelling voice can be heard to say that all of the mechanical inventions and all of the ingenuity of mankind is to be made its servant, is to be used to produce and keep a permanent peace, is to be used in the making of better conditions for men and women and children to live under, and find the highest development of all their powers unobstructed by unholy national ambitions; if that kind of voice can be heard with authority and compulsion in such a council, then truly our country will have organized itself to some purpose, for we will have vindicated the political philosophy upon which we have been

founded, and in which we have lived, and we will have settled the doubts of philosophers about this spectacular application of human ingenuity and mind to the development of mechanical aids to the comfort of mankind.

"The question of organizing an army without disorganizing industry is an exceedingly difficult question. When you talk of withdrawing a million or a million and a half men from the ordinary pursuits of peace, without dislocating our industrial and commercial processes, you have a hard problem.

Small Draft From Industry

"The so-called selective draft or selective service mode of raising a part of our army limits the ages of those to whom it applies to 30 years, and the number of men indispensably needed in industry, who will be drawn by that process, will be relatively small, since indispensable men are not usually under 25 or 26 years of age; but there will be some, and in the enlistments in the regular army and the National Guard, which is a force to be raised by voluntary enlistment, there will be more men, either impelled by their own patriotic spirit, in the one case, or summoned by this selective system in the other, who will be found to bear a very important, if not indispensable relations to industry, commerce, sciences, or agriculture.

"So the War Department is facing the question as to how to prevent indispensable men from being drawn into the military service. A number of suggestions have been made to the effect that it would be wise to promulgate in advance the names of certain classes of workers who ought not to be permitted to enlist. The number of classes suggested is quite large. I will give you a few of them: Mine workers, railroad workers, munition factory workers, steel mill, theological students, medical students, high school students, college students, all students, farmers—my mind does not, at the moment, recall others, but there must be many others.

"In other words, the suggestion has been made to the War Department by persons who take a perfectly proper view of the value of their own particular contribution, or that of their associates, that that particular class ought to be exempted. If all these requests had been granted, it would have led to the exemption of everybody; and if any of the classes had been exempted beforehand, it would undoubtedly have led to a feeling on the part of those not exempted that an improper favoritism and discriminatory selection was being made.

Enlistment Must Go Forward

"The experience of the world and our own judgment drove us to the conclusion that the enlistment process, whether by recruiting or selection, ought to go forward, and that wherever in individual cases men indispensable to industry were enlisted, that the fact of their importance to industry or agriculture or science or commerce should be shown to the board as an individual rather than as a class."

How Can I Buy a Liberty Bond?

It Has Been Carefully Estimated That the Proceeds of One \$100 Liberty Bond Will Fully Clothe, Arm and Equip One American Soldier. Equip Your Soldier Today!

TWO days more. That's all the time there remains to get under the wire with a Liberty Bond.

On Friday of this week—June 15—the books will be closed and it will no longer be possible for anyone to buy Liberty Bonds.

On Friday the opportunity to buy the best investment every offered will no longer exist.

Grab the Opportunity

Buy a bond now. You can do it almost as easily as you can buy a Post Office Money Order. Furthermore, the Post Office will be glad to furnish the blank form that the application should be made on. Or if there isn't a Post Office handy, go to the nearest bank and simply say:

"Please give me a Liberty Bond Application."

Then fill out the application, hand the teller in the bank 2 per cent of the amount of the bond for which you apply and the transaction is closed. You have no more to pay until June 28 when you pay 20 per cent; on July 30, you pay 30 per cent; on Aug. 15 another 30 per cent; and the final installment on Aug. 30.

Any bank will accept your Liberty Bond Application. No bank will charge you a nickel for this service; *nor does the bank make a nickel out of the transaction.* Every cent goes directly to the government; every cent will be used to clothe and arm and equip our fighting boys who will risk their lives that democracy may be made safe for the world.

Right now, the fountain pen in your pocket will do more good than the finest bayonet ever forged or the deadliest bomb ever made.

Here are 10 reasons why you should buy a Liberty Bond to-day:

1—The Liberty Loan is the safest investment ever offered; it is the United States government's secured, promise-to-pay, with interest at the rate of $3\frac{1}{2}$ per cent a year. (If the United States government fails, you won't get your money back.)

2—You don't have to pay for it all at once.

3—Therefore you don't need a bank account to buy a bond.

4—Men alone can't win the war. Men properly fed, properly clothed, and with ammunition—plenty of it—at their elbows *can* win the war.

5—Men who *can* fight are *going* to fight. Men who can't fight, because of physical disability or family ties have got to stand behind the fighting men and hand up supplies. It takes money to do that. The Liberty Loan will supply the money.

6—If 500,000 men each bought four \$100 Liberty Bonds, the issue would be all bought up.

7—A bond will shorten the war. A bond will save a life.

8—The boys who go to fight *give their lives*, freely. President Wilson merely asks you to *lend your dollars*. Dare you refuse?

9—Dollars can't take the place of personal service—but they can supplement it and make it twice as effective. Napoleon once said, "An army travels on its stomach." Liberty Bonds will feed our men.

10—*There ought to be a bond in every home.*

Factory Workers Are Buying Bonds

DETROIT, June 9—Workers in the motor car and allied trade factories are responding liberally to the employers' appeals for subscription to the Liberty Bond loan. Canvassing of Ford Motor Co. employees is but half completed and returns show subscriptions of \$2,009,000; an army of workers appealing to fellow employees at the Willys-Overland Co. plant at Toledo yesterday resulted in more than 10,000 subscriptions; Henry Leland, president of the Cadillac Motor Car Co., personally appealed to the employees of that concern and results from one-half of the factory display subscriptions totaling \$434,000; the returns at the Packard Motor Car Co. showed that,

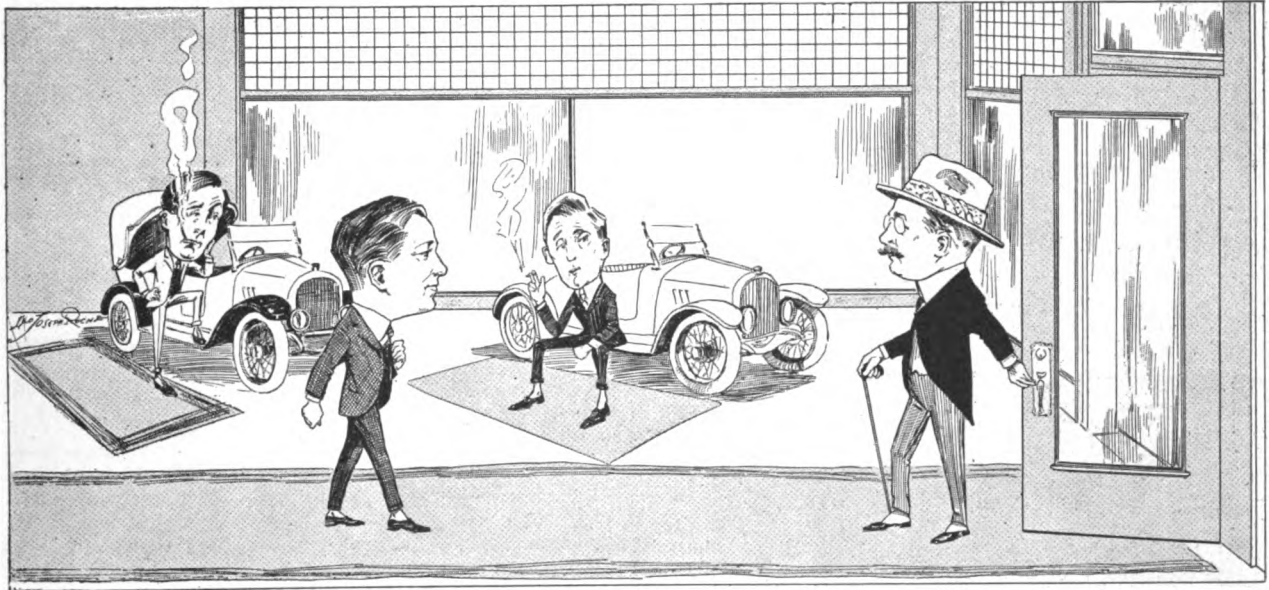
up to last night, 8,850 workers had purchased \$589,500 worth of bonds; the Chalmers Motor Co. announced that its employees' subscription of \$100,000 had been over-sold and that an additional subscription for \$100,000 was made; the Studebaker Corp. took \$250,000 worth of bonds for its workers; Dodge Brothers, holding noon-day meetings, has sold more than \$1,500,000 worth of Liberty bonds to its employees; more than 950 employees of the Northway Motor Co. purchased \$72,050; workers at the Fisher Body Corp. increased their subscriptions from \$100,000 to \$150,000; officials of the Detroit Twist Drill Co. have underwritten \$10,000 for their workers, and the De-

troit Lubricator Co. subscribed \$25,000. The Aluminum Castings Co. has taken \$40,000 and the Detroit Steel Spring Co. subscribed \$30,000 worth of bonds for employees. Detroit has subscribed for \$50,000,000 worth of Liberty Bonds, \$17,000,000 more than its quota.

Reo to Aid Liberty Bond Sales

LANSING, MICH., June 9—The Reo Motor Car Co. yesterday decided to arrange a canvass of its employees for the sale of Liberty bonds, and to aid the workers to purchase them by a small payment plan undertaken by the company.

What To Do When Prospects Open the Door



TOMMY TRUMBULL, because he was now sales manager for C. J. Reilly, Inc., presided at the sales meetings. These sessions were held at least once a week. The busier the salesmen were the more often the meetings were held.

"And now," said Tommy, "let's get down to this matter of selling in the salesroom. With our advertising and circular work we're getting a lot of people in these days without outside follow-up and it's up to us to capitalize on these callers and push as many of them over as possible.

"We've doped out a system for handling the floor work, we've assigned men to floor duty and the next thing is to take up the best way of doing the work."

"What do you do when a man walks in the door?" asked George Beckwith.

Run and Hide

"Run and hide in the stockroom," piped the newest, youngest and freshest of the sales squad Reilly had accumulated for the 1917 season. Some of the half dozen men started to snicker, but the snicker was cut short.

"That would be the best thing for some salesmen to do," retorted Tommy, "for all the good they are in handling this part of a sale right. Some salesmen can do more harm than good by not hiding in the stockroom most of the time.

"But now to get to the question: What do we do when a man walks in the door? If it's cold weather there should be some one to open the door for him. You may think you're a lackey or a door man if you do such things, but you want to get

By Ray W. Sherman

those ideas out of your heads. The mission of a salesman is to serve, to serve the customer and the house he represents, and if opening the door serves both—as it does—then opening the door for the customer is good salesmanship.

"Standing around at the back of the salesroom with one foot on the running-board of a limousine and waiting for the prospect to pull you down off your perch before you will condescend to do business with him is NOT service. The salesman who works that way is the kind who would do the most good if he ran and hid in the stockroom."

The fresh young man squirmed a bit. "After the man is inside approach him and say 'Good morning,' or 'Good afternoon,' or 'Good evening,'" continued Tommy. The fresh young man thought of something funny but didn't say it.

"Walk up to him as though you were alive," continued Tommy. "Don't rush at him as though you were running a sucker business and have just caught a new one, and don't trail up to him as though you

wished the old fool hadn't disturbed your smoke behind one of the cars. Walk up to him as you would like to have a man walk up to you if you were the man walking in the door.

"Remember this, boys: The approach is half the sale in this floor work. Some of the approaching has been done by our good advertising and circularizing. We have given the prospect the impression that we are an up-to-snuff organization. The factory advertises its product in a high-class way, so when the prospect walks in here he gets a distinct shock if he finds we don't fit in with the advertising. That's why your approach on the floor is half the sale. You have in your hand all the work that has been done through advertising, and you have it in your power to put the finishing touch on it or throw the whole thing in the ash barrel.

Walk the Right Way

"Therefore, make it your first business to walk up to the man in the right way. This part of the sale doesn't involve words or anything else—nothing except walking across the floor. The way you walk across the floor may make or kill the sale for you. If you stand at the rear and make the man walk to you it is a stone in your pathway.

"Having walked to the man say, as I said before, 'Good morning' or something like that. Then wait for him to say something. You have done your part. As a businessman, you have greeted him courteously. The next move is his. He has come into your salesroom for some pur-

(Continued on page 42)

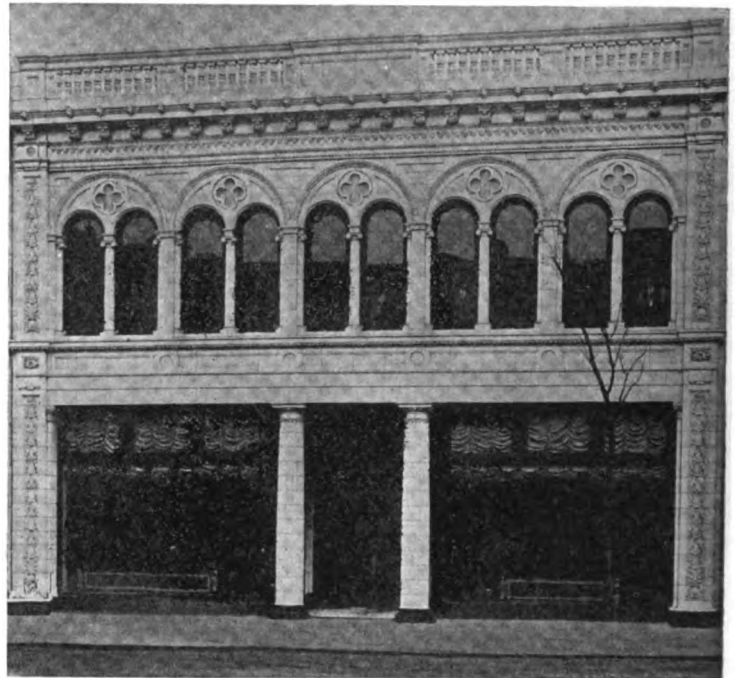
NEXT WEEK

This week the Reilly story covers meeting the prospect as he walks in the salesroom door. Next week's story tells how to present the sales points of a car in their most logical order and how to wind up the sales story.

Variety in Terra Cotta Building Fronts

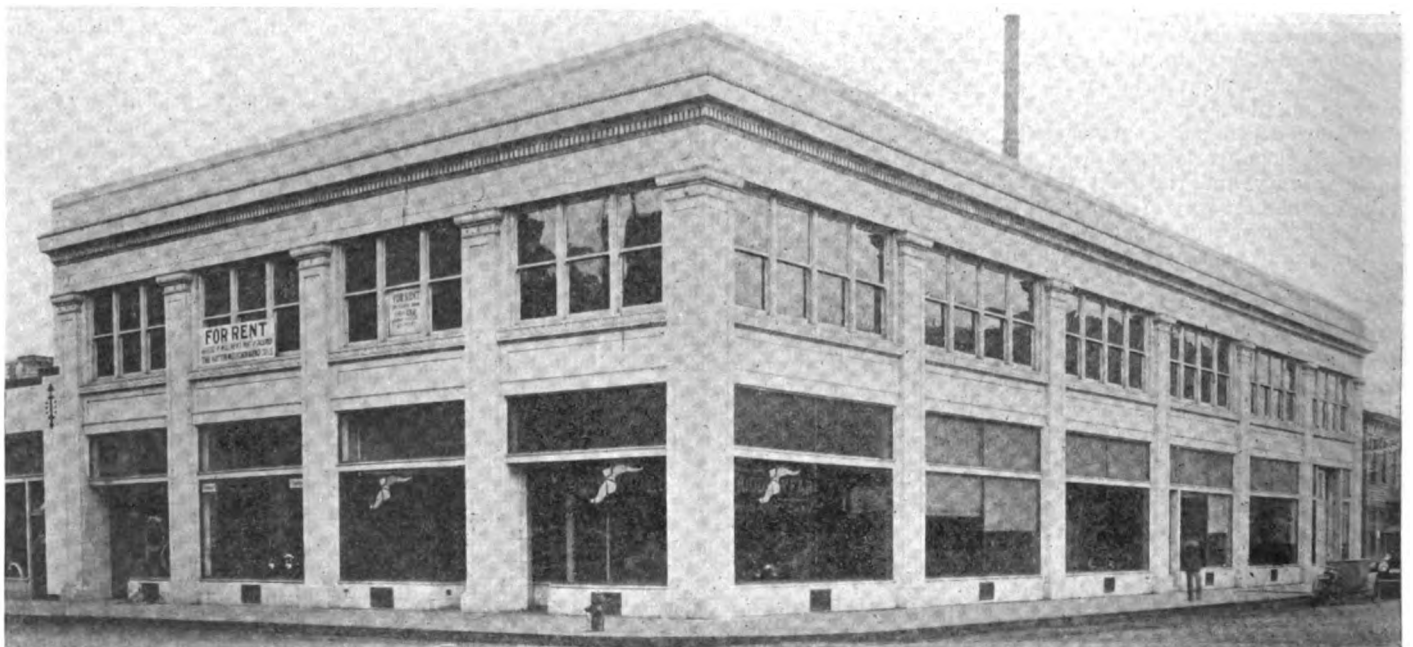


At time of erection the technical possibilities of color in enamel terra cotta had not been fully established and architects secured the touches of color they desired by providing channels and spaces in terra cotta to receive inlays of colored tile. This unique combination of processes makes building of unusual interest. The entire front, from sidewalk to skyline, is enamel terra cotta with tile inlays

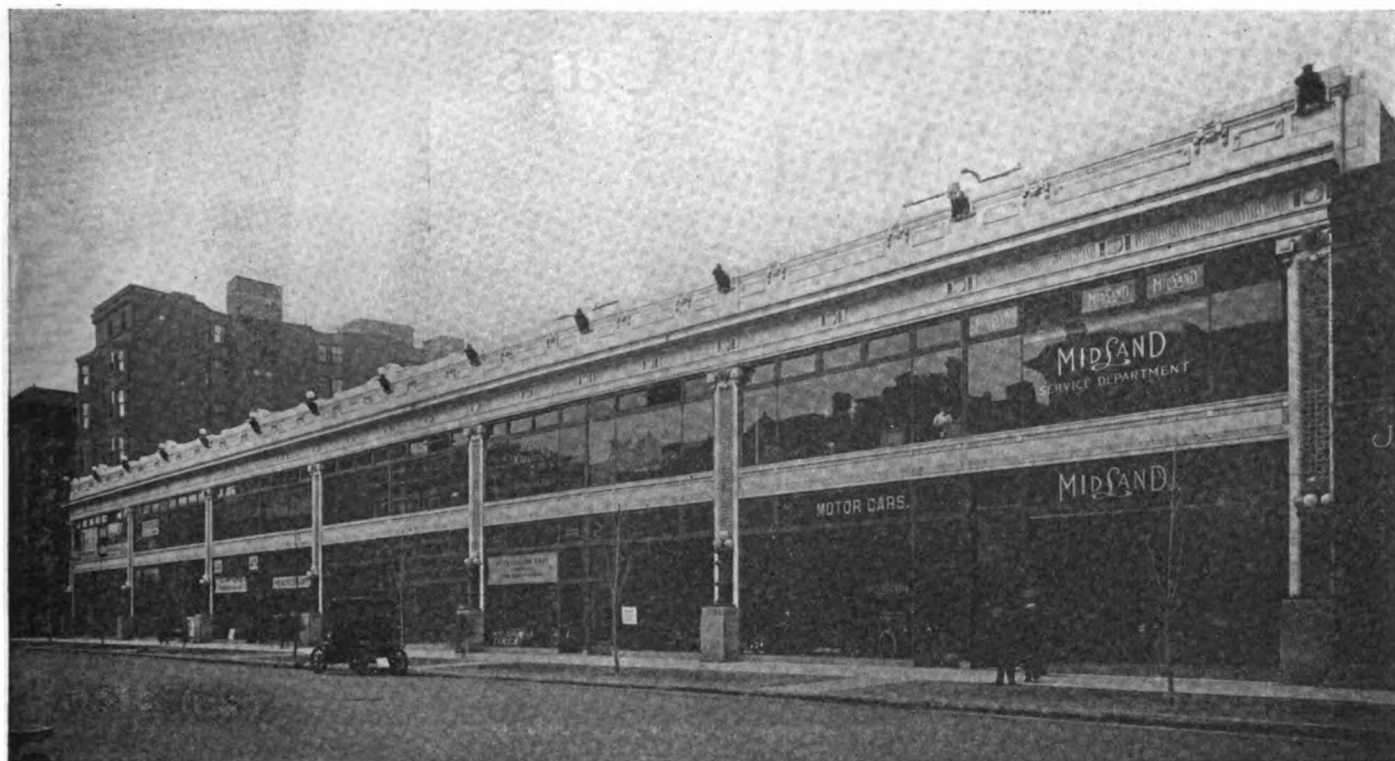


This is a notably successful façade. The design fully expresses the purpose of the building and the material is adequate for execution of design. Enamel terra cotta is so beautiful that people often admire a building as a "terra cotta job," forgetting that good judgment in choice of style and skill in designing underlie the whole operation.

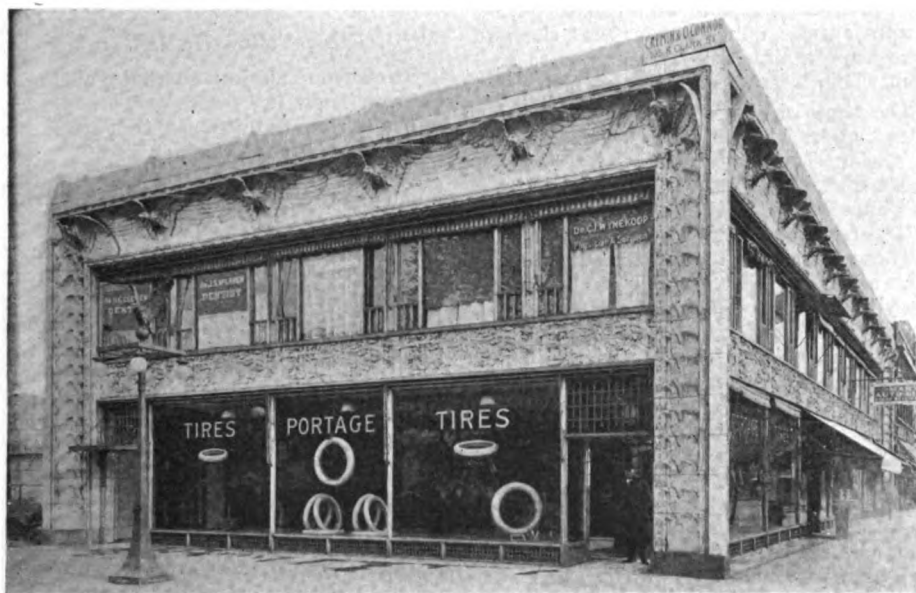
Honor the architect; he is the man behind the terra cotta



The fronts of this building are of white standard terra cotta and suggest in their orderly uniformity a large business well conducted. This valuable effect is of course due to the design—but could this design have been equally well executed in any other material save in some other grade of terra cotta? In this particular case the terra cotta in all probability costs less than the cheapest variety of stone would have cost. Terra cotta does not always effect a saving, but discreetly used is always worth its full cost

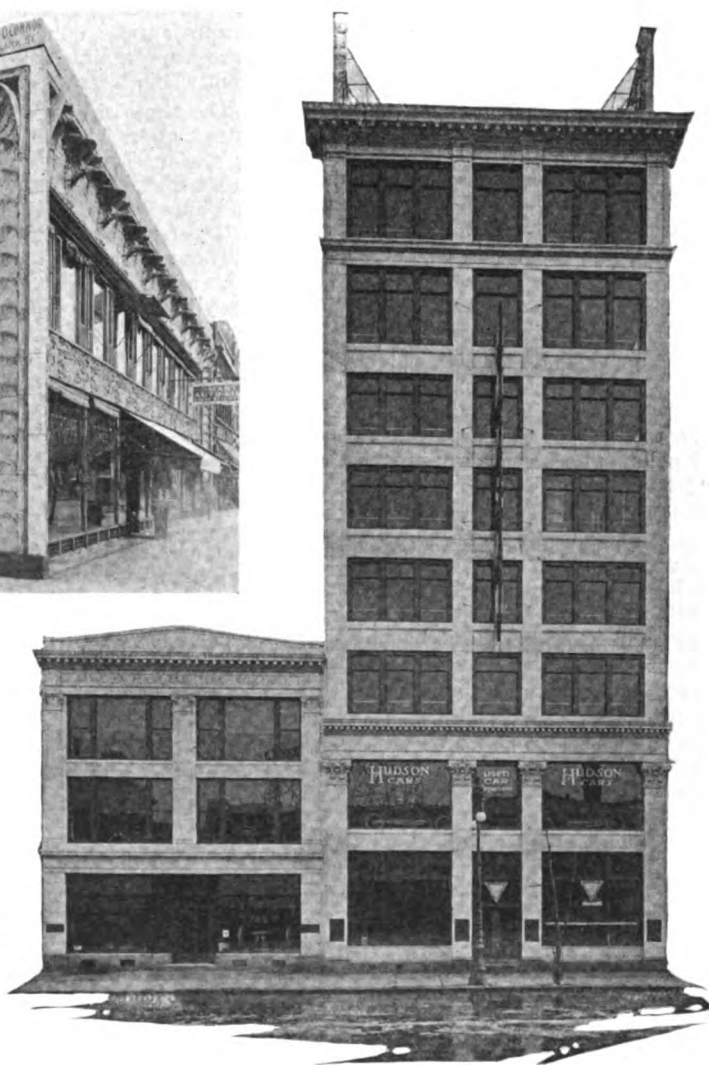


This building is interesting as having a front consisting mostly of glass, yet achieving a real architectural value. The choice of material, enamel terra cotta, gave the architect command of colors and even enabled him to confer on the heavy lamp standards the full appearance of expensive bronze. This use of terra cotta to supplant metal that would have to be kept painted (for real bronze is seldom available) is perhaps the most valuable suggestion afforded by this illustration. It may be said that cost of such special work can only be established by an estimate on design in hand, but generally speaking a saving can be effected as against metal



Above—The façades of this building are unique and certainly catch the eye of the passer-by, as was doubtless intended. The material used is terra cotta, and could scarcely be anything else. The detail is judiciously elaborated and the building itself as a whole has a high rank among structures erected to meet special conditions of environment and service. Work like this is naturally expensive, but in this case the duplications brought cost down again

Right—Eight-story sales and service building of the Gomeroy-Schwartz Motor Car Co., Philadelphia, with handsome terra cotta front. The Kelly-Springfield building next door is finished in the same material



This Man Sells Cars By Mail

□□□□□□□□□□□□□□□□

“**W**ITH the right kind of sales talk put into a series of sales letters, high priced cars can be sold by mail. It may sound strange, but I have sold cars by mail in a State that produces more cars than any other State in the Union—sold and delivered cars to satisfied customers without ever as much as shaking hands with them. So the value of a good sales letter cannot be underestimated.”

□□□□□□□□□□□□□□□□

THIS is the sales creed of W. A. Biss, who sells the Haynes in Toledo, Ohio. Biss is sales manager of the Parker Automobile Co., Haynes dealer. For two years he had charge of the Haynes sales in Michigan. During the last 18 months of that two years the volume of sales increased \$322,000. He is doing the same thing for the Parker Automobile Co.—and “is selling them by mail.”

With confidence, knowledge, and based on advertising, the series of sales letters may be written. But they cannot be dashed off in an idle moment. A series of sales letters should lead to but one conclusion—and that conclusion to buy your car.

Biss relates one incident that shows how a sales letter can do 99 per cent of the selling when a salesman could not even get an interview. He had received a tip that a certain influential man was in the market for a car—and called—and was nearly thrown from the office.

Put Him On the List

He resolved to get that man—but another call would obviously have been poor policy. So he put him on the circular letter list, and forgot him for five weeks.

Then one day he again dropped into the man's office, presented his card—and was immediately ushered in. In FIVE MINUTES he had completed the sale.

The man was a good business man. He appreciated a good sales letter. He appreciated persistence—and the letters had aroused enough interest to cause him to investigate the car along the lines that the letters suggested. When Biss called, he was no longer a stranger—they had views in common—the deal was closed.

The sales letter is a dealer's most powerful lever—if he has confidence in his product—gets the prospect's viewpoint—and keeps everlastingly at it.

A series of letters sent out by Biss are shown. Each follows logically after

the other—but let us analyze them, one by one.

The first possesses all the elements of a successful sales letter. First, and most important, it gets on the prospects side of the fence. The “You,” “You,” “You” is carried throughout—and the letter talks like a good salesman.

Paragraph one creates attention and interest. Paragraph two contains description, explanation, and proof; paragraph three, inducement; the closing paragraph a clincher, and impulse to action. This is true sales letter form.

The three follow-up letters need little introduction. Interest has been aroused by the first letter. Hence these contain only description, explanation, inducement, and clincher. But the “You” attitude is held throughout.

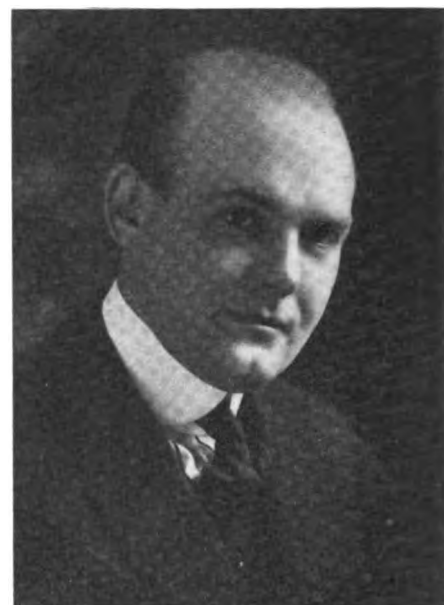
These letters are not sent out broadcast, signed by the company name alone. They are sent to a list of prospects that already own cars, or, if not owning one, at least in a position to purchase one. Each salesman has certain prospects, and signs personally the letters sent to his group. Thereby the prospect becomes familiar with the salesman's name.

A card index follow-up system is maintained by the office girl—as is all routine connected with the system. Each prospect has a card; a record of letters sent and answers received is made, and by means of a movable tab on the margin, another letter sent at the regular interval. Weekly reports are made, new prospects added, and the entire system kept up to date with little effort.

Right Kind of Sales Talk

But—note that Biss says “the right kind of sales talk put in letters.” This means more than good English, neatly typewritten on attractive stationery. Sure, it means that, but it also means first, last and always, “Sell Yourself,” “Advertise,” and “Keep Everlastingly at it.”

On the first requisite, “Sell Yourself,” Biss has the following to say:



W. A. Biss

“Be sold yourself. Know your subject. With a knowledge of what you are selling, you won't find yourself in a position where the only method of telling how good your product is, is by telling how rotten your competitor's product is. Don't assume the defensive, and talk up hill all the time. To do so is to keep the mind of your prospect on the other salesman's car—not on your own, where you want it.”

Three Follow-Up Letters

“Know your subject so that you know that you know it.”

“Know your subject so that you can tell it in a forceful manner.”

“Know your subject so that you can demonstrate it, and show it.”

Biss believes in sales meetings—every day, every week, or every month, as may seem necessary. But he also believes every member of the organization is a salesman, and every member has a chance to express his views.

The mechanic comes in from the shop and explains mechanics of construction for sales talks. The wash rack man, even, may have a good sales argument—the floorman a point on easy maintenance. Each sells himself, and sells the others. Perhaps little that is of use in sales talks comes to light—but knowledge is created, and knowledge creates confidence.

This is the first essential to writing a successful sales letter. Advertising must follow to pave the way for the letter.

Biss does not believe in shotgun or spasmodic advertising. He believes in determining a season appropriation for advertising, and dividing it equally through the advertising mediums of the community throughout the year. Small space, appearing continually, new copy, heavy type and lots of white space are the essentials of successful dealer advertising.

THE LETTERS

are on the next page

Here Are the Letters That Sell Cars by Mail

Letter No. 1

Toledo, Ohio, April 4, 1917.

Mr. J. H. Boldman,
Toledo, Ohio.

Dear Sir:

"How about Service?" "What attention will I receive after I purchase my car?" This question is in your mind, as it is in the minds of all the prospective purchasers of motor cars. Our answer is "PARKER SERVICE SATISFIES."

PARKER SERVICE SATISFIES because it is maintained in the interests of the owner.

PARKER SERVICE SATISFIES because it affords the attention that

the driver of a new car should receive.

PARKER SERVICE SATISFIES because it affords the owner of a HAYNES with a monthly inspection of his car.

PARKER SERVICE SATISFIES because our service department is HAYNES trained, former employees at the HAYNES factory, and we handle Haynes cars exclusively.

The service in the HAYNES, "America's Greatest Light Six" and "Light Twelve," is guaranteed, not by special built cars nursed along by skillful drivers, but guaranteed by its past three years' service in the hands of thousands of owners in all parts of the

country; guaranteed by more than 100,000,000 miles of actual road travel in the hands of drivers like yourself.

You will appreciate this dual service, we are sure. Let us explain our plan in detail, and at the same time give you an opportunity to drive and inspect "AMERICA'S GREATEST LIGHT SIX" or "LIGHT TWELVE." Arrange this to-day by calling Main 2953 on Home Phone. We will look forward to your call, and in the meantime, we are.

Very truly yours,

THE PARKER AUTOMOBILE CO.,

By.....
Sales Dep't.

Letter No. 2

Toledo, Ohio, April 11, 1917.

Mr. John H. Smith,
Toledo, Ohio.

Dear Sir:

Facts furnish proof, and on this basis we want you to consider some proofs before you buy your car. Facts showing one mile to sixty miles an hour on high gear, 15.1 miles on a gallon of gasoline, 231.8 miles on a quart of oil, 6280 miles on a set of tires, you would consider an achievement if only in one motor car, a six cylinder car with a 3 1/2-inch bore and a 5-inch stroke.

These facts, however, are not for one individual car. One to sixty miles an hour on high is the standard of performance that has characterized the Haynes, "America's Greatest Light Six" for the past three years. It is the record, not of one car, but of the whole production of the Haynes factory for that period.

Likewise the record of economy is not the record of one car in the hands of a skillful driver on a special track, but an average record, not of one Haynes car but 5000 Haynes cars, not of one driver but 5000 drivers,

not of one track but 5000 sections of city and country roads in every state in the Union, not of one trial test but of one season, two seasons, and in many instances three seasons continual running, for the Light Six Haynes motor has not been changed essentially during that period.

These drivers who piled up this wonderful record of Haynes performance and economy, of high mileage to the gallon of gasoline, to the quart of oil, to the set of tires, were average owners such as yourself. They have furnished you with the facts on which you can base your proof of service and reliability.

The owner drivers have firmly established HAYNES Supremacy in the quality car field. It is truly "America's Greatest Light Six." Its performance is unexcelled. Higher priced cars cannot afford you more. Lower priced cars will not cost you less. Our number is Main 2953 on the Home Phone. We are open Sundays and evenings.

Yours very truly,
THE PARKER AUTOMOBILE CO.,
By.....
Sales Dep't.

Letter No. 3

Toledo, Ohio, April 16, 1917.

Mr. John Smith,
Toledo, Ohio.

Dear Sir:

In selecting your motor car, you are seeking two main features, are you not?—"Performance and Service." These are the factors that will decide your first choice.

Performance is power. Power to mount hills with ease, to pull through hub-deep sand, to throttle down in traffic, to give you a quick getaway, and make possible that burst of speed. Service represents the every day work that a car has and will perform in your hands.

These two features permeate the HAYNES, "America's Greatest Light Six" and "Light Twelve," to an unusual degree, making this distinctive car the first choice of thousands of discriminating motor car buyers. This motor develops 55 horsepower, a horsepower for every 55 pounds of weight & will throttle to one mile an hour on high gear, pull the steepest hills and sand roads on high, and pass the sixty-mile mark with a burst of speed. It has traveled 166 miles on low gear in 11 hours and 7 minutes, and has been driven up a 19 per cent grade at 30 miles an hour from a standing start. It develops more power than any other motor on the market with an equal bore and stroke.

Its service record for durability and economy at the conclusion of three years' service is equally as interesting from your standpoint. It has averaged from 18 to 22 miles to the gallon of gasoline on test runs, 400 miles on a quart of oil, 12,000 miles on a set of tires, and has traveled 54,513 miles with a wear on the crankshaft bearings of only five ten-thousandths of an inch.

This is the record of performance and service that has made the "HAYNES" the first choice of thousands of buyers.

Remember that an order placed now will protect you against the necessity of satisfying yourself with a second choice. We can't urge an early order too strongly in your own interest. Call Main 2953 for an appointment.

Very truly yours,
THE PARKER AUTOMOBILE CO.,
By.....
Sales Dep't.

Letter No. 4

Toledo, Ohio, April 16, 1917.

Mr. John Smith,
Toledo, Ohio.

Dear Sir:

Will you not look forward to the arrival of a catalogue descriptive of the Haynes, "America's Greatest Light Six" and "Light Twelve" which we are mailing you under separate cover? As you are interested in the purchase of a new car, we feel sure you will find the contents intensely interesting. Go over this matter thoroughly. Note the simple clean-cut construction, the large bearing surfaces, in fact every feature indicates extra strength for sturdy dependable service.

This car represents the best experience of 24 years of successful endeavor in the manufacture of quality motor cars. And remember that the "Haynes Light Six" is a tried and proven success. The same motor we offer you today has stood the test of three years' terrific service in the hands of

thousands of owners in all parts of the country. After traveling millions of miles under all sorts of road conditions, it presents a service record that brands it as the foremost six on the American market. More powerful, more flexible and speedier than any other motor of equal size.

This dependable service and construction will interest you, we are sure. Things are moving rapidly with us and we don't want anyone to be disappointed on the delivery of a Haynes. We do not want anyone to find it necessary to make a second choice, so we are urging you to place your order at once.

Will you not give the matter your attention and let us hear from you either in person or by telephone? A demonstration convinces.

Yours very truly,
THE PARKER AUTOMOBILE CO.,
By.....
Sales Dep't.

Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge, but be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a stamp and your correct name and address.

An Ideal Parts Stockroom

THE LETTER

Editor MOTOR WORLD—As a subscriber, I would like to ask you for suggestions as to the arrangement of a parts stockroom, with specifications, equipped to carry about \$8,000 worth of Ford parts.—T. L. Rowan, Rowan & Lawrence, Oakland, Cal.

OUR ANSWER

The parts stockroom described is no more applicable to Ford parts than it is for the parts of any make of car. It is, however, an actual stockroom, used by the Ford agent in Port Huron, Mich.—the Petit Garage, and holds between \$7,500 and \$8,000 worth of Ford parts.

In Fig. 1 is shown the floor plan. The stockroom measures 20 x 20 ft., is placed at the rear of the office, and faces on the drive or aisle leading to the garage.

It fulfills the first requisite of the ideal stockroom—namely—plenty of light. Dirt and disorder are disclosed by light. Light is essential to getting parts without loss of time. Light means air, ventilation and prevention of rust.

Walls C and B are practically all windows, extending from the top of the racks to the ceiling. A window in each of the walls serves as an opening for communication between either the stock keeper and the office or the stock keeper and the customer in the drive. Hence there is no necessity for anyone except the authorized person to ever go into the stockroom. This is essential for centralization of responsibility.

So much for the general layout. The individual shelves and racks were arranged as follows: Rack A, Fig. 2 has 110 bins, each measuring 12 in. wide, 12 in. deep and 10 in. high, with a front board 4 in. wide. These bins hold water connections, hose, hose clamps, engine parts, manifolds, piston rings, pistons, universals, roller bearings, commutators, starting cranks, and all such middle sized parts. The top is used for larger miscellaneous parts.

At the right of Fig. 1 is the rack B, which contains bins of the same size as those in rack A, but each is divided into four parts by wooden partitions.

These bins carry small parts such as valve springs, bolts, bearing cones, magneto terminals, valves, grease cups and ball bearings. The top of the bins forms a table that is used for wrapping parts, for carrying the sales record machine, and forms the desk of the stockroom.

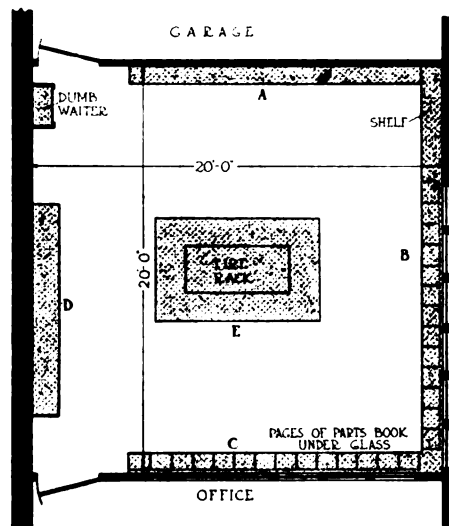


Fig. 1—Plan of stockroom, showing stock bins at A, B, C, D and E

Rack C is a continuation of rack B, has the same individual bin construction, and is used for the same type of small parts. The bins in these two racks are numbered in series from 118 to 221—having a total of 103 racks.

At the side of the room, extending nearly to the ceiling, is rack D, used for radiators, rims, wheels and accessories.

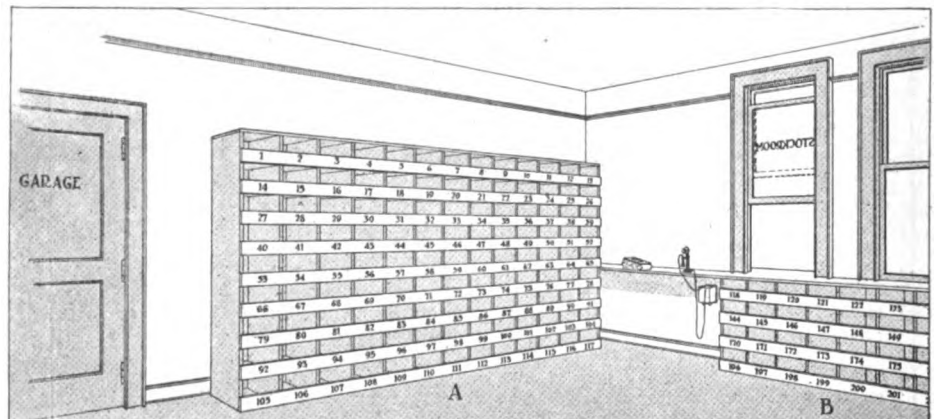


Fig. 2—One hundred and ten bins, 12 x 12, for housing medium sized parts shown at A and B

It is merely a series of wide, deep shelves, having three large storage spaces beneath.

In the center of the room is the rack for tires, truss rods, axles, drive shafts, etc. As is the case with the rest of the racks, the construction is wood throughout, and made exceptionally heavy.

At the left of the door leading into the garage is the dumb waiter, or parts elevator. When the repairshop is above or below the stockroom, a dumbwaiter should always be installed. It need be little more than a box that may be lowered or raised with the parts. Its use renders frequent trips between the shop and the stockroom unnecessary.

In conjunction with the dumb waiter, a shop phone system should be installed—and for the same reason. Even in the small station it will quickly pay for itself in time saved, efficiency and satisfaction.

Stock is rendered instantly accessible by means of the parts book tabulation system. Pages from the parts books are placed on the top of bins B and C, beneath sheets of plate glass. On the margin of each sheet, the bin number of each item is noted. The parts book illustrations show at a glance what part is desired; the tabulation shows the price, the number of the part, and the bin location. When the part desired is removed, the number of parts left in the box are a visible index of the stock on hand. A stock record, made up daily from the sales record, serves as a check on the visible index.

Getting Business with Letters

Answering United Supply Co., Tecumseh, Mich.

On the opposite page are letters and suggestions for three ads. These letters cover three different features of your business as do the ads.

The advertisements we should set up with a conspicuous head as marked in the upper right hand corner of the sheet and the body of the ad should be set in a type large enough to give good display and leave plenty of white space.

In case you want to make these ads two columns wide, you can stretch the head out into one line or can use the single column sizes with much larger type, enlarging the ads to two columns.

If the bulk of your business is battery business, and if you intend to keep it so, we believe it would be well for you to have about every other ad a battery ad.

You will notice that these ads are somewhat conversational in style. They are, in fact, practically what you might say to a man if you were talking to him face to face. Acting on that basis, you doubtless can write many similar ads yourself. This style of copy is unusual in country papers and we believe you will attract attention if you will keep it up.

Watch Your Tires

You never can tell what a tire will do until it's done it.

But a thing you can tell is what your dealer will do in case the tire goes wrong.

Come in and ask us what we do when a tire that WE sell proves defective.

United Supply Co.

Ovid J. Marsh,

Tecumseh, Mich.

How About YOUR Batteries?

If they're old you may need new ones.

If you ever have trouble you should see an expert P. D. Q.

That's why you should see us—we are experts and we sell good batteries, the —.

United Supply Co.

Ovid J. Marsh

Tecumseh, Mich.

BATTERY LETTER

When a motor car battery needs fixing it should be taken to an expert. Or, if you believe the battery needs attention you should take it to an expert and let him give you his advice. It may save you money.

Some day you will need to get in touch with a battery man who knows his business, and that is why we wish you would learn about our establishment now, even if you don't need our services today.

We are equipped to handle all kinds of battery work. We also represent the — line in this section.

Here's a suggestion: The next time you're in Tecumseh drive around and say Hello and let us test your batteries—without charge to you.

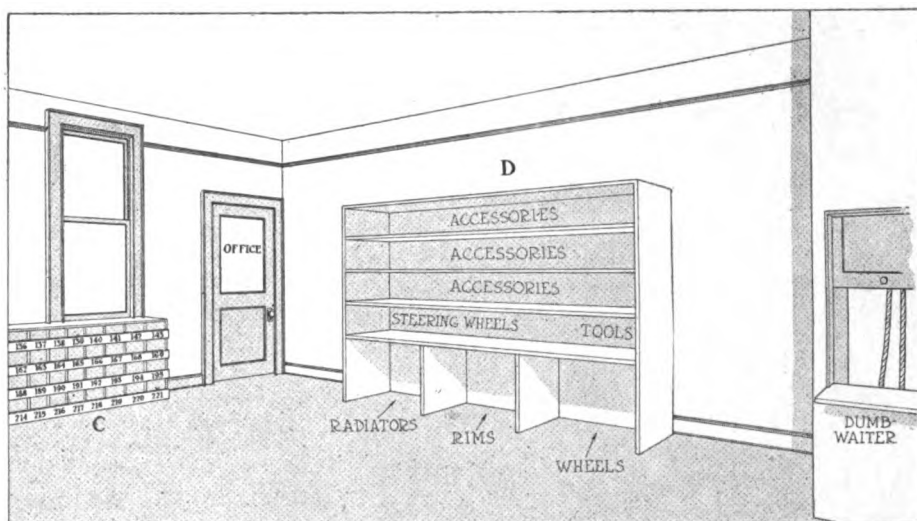


Fig. 3—C is a continuation of B, Fig. 2. D is for accessories

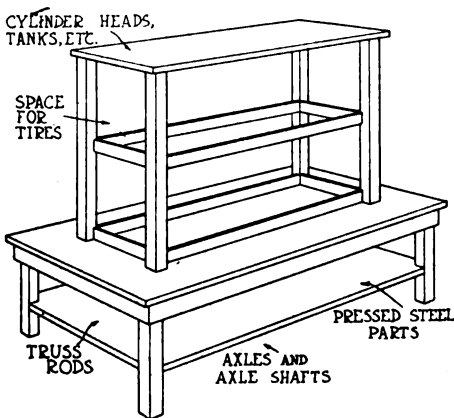


Fig. 4—Rack for tires and axles in the center of the room

When YOUR Car Gets Hot—

It surely will have warm spells if the weather ever gets really warm.

And then is when such things as the RIGHT oil may save you time and money.

We sell — oils and want to talk with you on this oil question. Come in.

United Supply Co.

Ovid J. Marsh

Tecumseh, Mich.

OIL LETTER

The oil you use in your car plays a big part in the work your car does. If the car isn't living up to your expectations maybe the oil, and not the car, is to blame.

Have you ever seriously considered this oil question?

We have, and we believe we know a lot about oils and the different kinds of oil that are suited to different motors in different weathers.

There's nothing like the RIGHT oil, and we suggest that you drop in and talk with us about this oil question. We shall give you the full benefit of our experience and shall be pleased to recommend one of our own oils in case your motor needs a change.

We are on Blue Street, two doors west of the Tecumseh Theater.

TOURING SUPPLIES

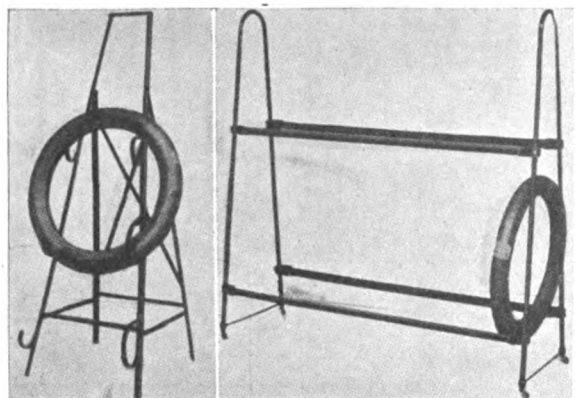
Did you ever go to a picnic and, after you got there, miss all the things you might have used if you hadn't forgotten them?

Isn't that just like summer touring? There are lots of things we actually need, but we don't think of them until we are away out in the country where we can't get them.

We believe you would enjoy a visit to our accessory store. In it we have a stock of those articles you MUST have and, in addition, we have many things you will NEED—after you have seen them.

Check your car over and then come in and choose from our stock the things you lack. We are here to serve the motorists of this section and we feel we cannot grow unless our service is good. Come in and see just how good it is.

Accessories

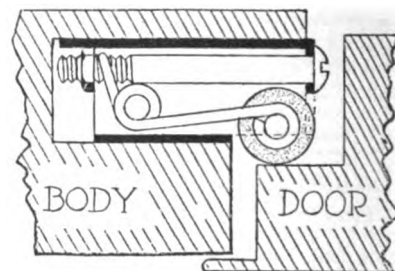


DOW TIRE DISPLAY RACK

A display rack for attractively carrying a single shoe. Is suitable for show window, garage or sidewalk. The tire may be padlocked to prevent its theft. It is made of steel, and enameled black. Price \$5.—Dow Wire & Iron Works, Louisville, Ky.

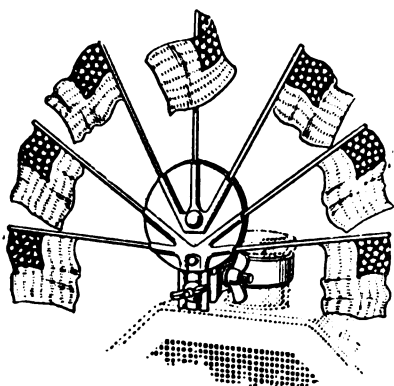
TIRE STOCK AND DISPLAY RACK

It is 6 ft. 3 in. long and is designed to carry two rows of tires. It is simple and attractive. Price \$5.50 finished in black enamel.—Dow Wire & Iron Works, Louisville, Ky.



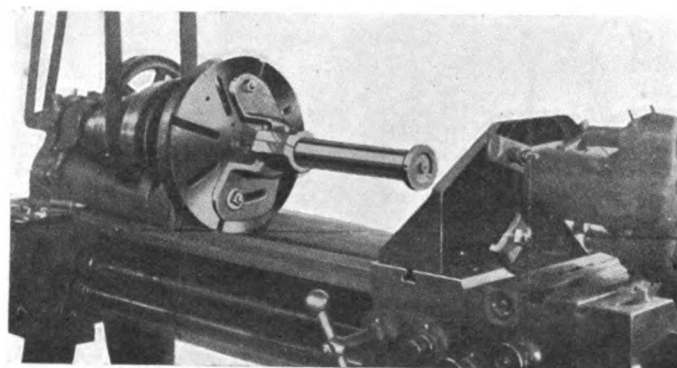
PUCKETT ANTI-RATTLER

A roller device, spring controlled, placed in the angle of the door and forces the latch firmly against the keeper so that the door cannot rattle. Price 50 cents.—Western Auto Specialty Co., Iowa City, Iowa.



WONERMORE FLAG HOLDERS

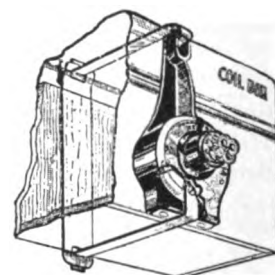
A flag holder which will accommodate one to seven flags. It is adjustable and may be used on the radiator cap, rod between headlights, windshield, top bow, wheel spokes, etc. Price 65 cents. A single adjustable flag holder for the radiator cap sells for 20 cents. Special designs are made for Buick, Dodge, Overland and others. A top bow flag holder consisting of a two-piece clamp tightened with a small screw sells for 10 cents.—Morris & Menkhaus Mfg. Co., 34 East Court St., Cincinnati.



SALTER CYLINDER GRINDER

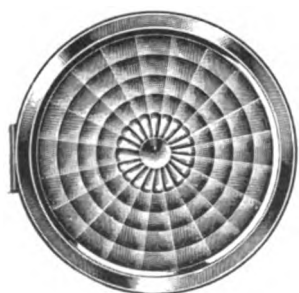
It enables cylinders to be re-ground on the lathe, the attachment consisting of a large angle plate set on the carriage and to which the cylinders are clamped, and the grinding tool which is mounted on the face

plate. With an ordinary lathe, the speed of the grinding wheel is 4500 r.p.m. A separate boring bar may be used instead of the grinding wheel. It will handle bores from 2½ to 6 in. Price \$90.—Salter Motors Mfg. Co., 1516 Oakland Ave., Kansas City.



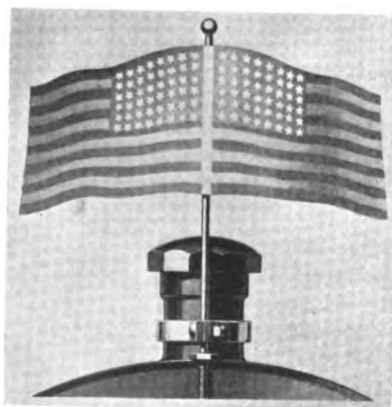
NEAL LOCK

An ignition lock which takes the place of the switch on the Ford. The lock itself is of Yale make. The locking members cannot be removed while the lock is set. It is said that it may be installed in one minute. Price \$3.50.—Hall Hardware Co., 139 West Washington St., Indianapolis.



MORE-LITE LENS

A headlight glass with circular prisms which diffuse the light so that the glare is eliminated.—L. E. Smith Glass Co., Mt. Pleasant, Pa.



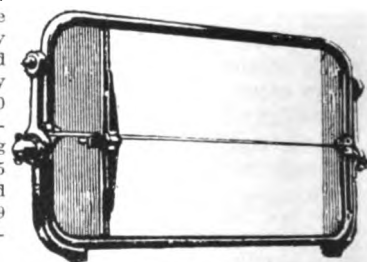
AUTO SPIN FLAG

A double flag which spins due to the air current induced by the motion of the car. It is made of metal, lithographed in red, white and blue. The bracket

is adjustable to any radiator cap and the length of the staff may be as much as desired so that it will clear any obstruction. Price 50 cents. An additional attachment for mounting in the radiator cap, 25 cents.—Wallace C. Hood Service Bureau, 1199 Woodward Ave., Detroit.

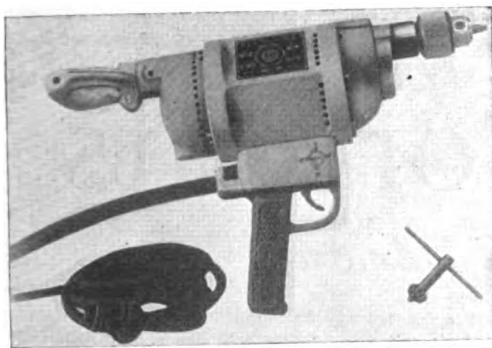
CHICAGO FUSES

Fuses, fuse clips and bases, fiber cut-outs and fuse boxes are manufactured. They are of rugged construction and designed particularly for automobile work. Fuse box for 5 fuses sells for \$2.25 up.—Chicago Fuse Mfg. Co., Chicago.

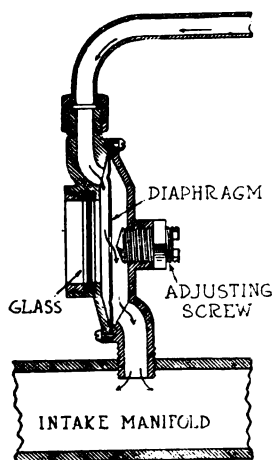


UNIVERSAL RAIN RUBBER

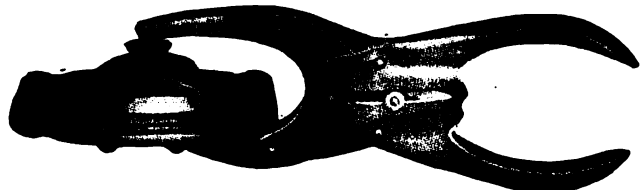
It clears away raindrops off the whole windshield in one movement. It slides without effort. It is instantly attached by opening the windshield. Made in five different models for all known makes of two-piece windshields. Price \$1.50.—Tri-Continental Corp., Buffalo.

**B & D PISTOL DRILL**

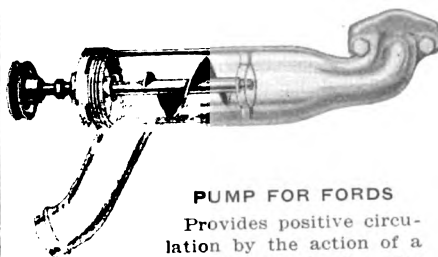
A portable electric drill with a pistol grip and a trigger switch. The current is shut off by pulling the trigger.—Black & Decker Mfg. Co., Baltimore, Md.

**SWEG LOCKING DEVICE**

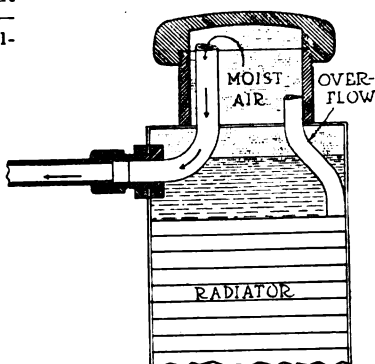
It fastens to the front wheel of the car with a projecting point beyond the outer edge of the tire that will throw the car to the left or right if an attempt is made to drive it. Price \$10, installation \$5.—Walker Kels Lock Co., Chicago.

**TONGEMON VULCANIZER**

A tube vulcanizer which operates like pliers and obtains its heat from the burning of a disk of specially prepared material. After the tool is in place and pressure has been applied, it may be locked by a small thumbnut. Price \$2.50 with 1 dozen assorted patches and fuses. Two sizes of copper-plated vulcanizing pans are furnished.—Tongemon Vulcanizer Co., 626 Plymouth Bldg., Minneapolis.

**PUMP FOR FORDS**

Provides positive circulation by the action of a spiral pump driven from the fan. Its attachment requires only a few minutes. Price \$7.—Giddings & Lewis Mfg. Co., 200 Doty St., Fond du Lac, Wis.

**HYDRO-EYE**

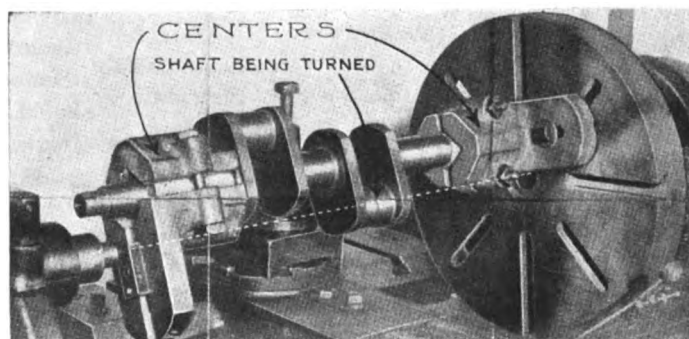
The purpose of this device is to prevent the formation of carbon by supplying moist air to the manifold, the air being drawn from the top of the radiator and carried to a diaphragm, which regulates the amount of moisture, according to the suction. When the suction is high, the diaphragm is drawn close to an adjusting screw and the passage of moisture through the hole in its center is thus reduced. As suction decreases the diaphragm moves further away from the screw and allows more moisture to pass. It is readily attached. Price \$10.—Hydro-Eye Co., 332 West 70th St., New York.

**DURABLE FLAGS**

Indestructible flags—wear-proof and washable. They are made of an unglazed oilcloth composition which is flexible enough to allow the flags to wave freely. The material is strong enough to resist fraying due to the whipping of the flags in the wind, and when the flags become soiled they may be washed with soap and water. The flag holder is nicked and may be mounted in front of the radiator filler or directly on the cap. No 10 consists of an American, French, English, Belgian or Italian flag, 4 x 6 in., and sells for 50 cents. Radiator cap flag holder, 15 cents additional. Three flags with holder, \$1.50; five flags with holder, \$2.50. Flag holder for three or five flags, 30 cents.—E. J. Willis, 85 Chambers St., New York City.

NEWMAN DRILL HEAD

A turret drill head for use on a drill press, enabling four tools to be brought into action. Each tool is mounted on a hinge and ordinarily stands horizontally, but when it is used it is swung around vertically and locked in position. Price \$75 to \$100.—Newman Mfg. Co., 719 Sycamore St., Cincinnati.

**BAILEY THRUST AXLE BEARINGS**

Ball thrust bearings for Ford and Chevrolet 490 axles.—Ahlberg Bearing Co., Chicago.

**HOWE SEARCHLIGHT**

The feature is the bracket, which allows the light to turn easy, yet it stays clipped regardless of vibration, because the universal joints are held firm by coil springs. The bracket is hollowed to carry the wire. A two-piece clamp is made in seven styles for different types of windshields. The switch is at the rear of the lamp and is waterproof. Light is supplied by a 21 candlepower Mazda lamp. The lamp may be used as a trouble finder by loosening one screw. Price \$7.50; with rear view mirror on rear or on top, \$8. Single shell lamp with same bracket and two-piece detachable clamp, \$4.—Howe Mfg. Co., 1732 S. Michigan Ave., Chicago.

CRANKPIN TURNING JIG

Adjustable clamps which make it easy to center the crankpin journals of the crankshaft so that they may be turned down. They will accommodate any type of crankshaft and will fit diameters from 1½ to 2½ in. and turn any throw from 1¼ to 5 in. Price \$6 per pair.—Salter Motors Mfg. Co., 1516 Oakland Ave., Kansas City.

Repairshop Shortcuts

From The Motor World Roadman

(No. 1215) SPRING OILING CHISEL

Spring leaves may be readily opened and the oil or grease carried to the center of the leaf by the use of this chisel. It is tapered somewhat more than a standard cold chisel, and is grooved to permit the insertion of the lubricant.—W. B. Rood, Detroit, Mich.

(No. 1216) QUICK ACTING JACK

This quick acting jack not only raises the car, but may be locked in a raised position by the clicking. The lever may be adjusted to many cars by a pin and holes in the side strips.—C. R. Pierson, Salineville Auto Garage, Salineville, Ohio.

(No. 1217) TRANSMISSION GEAR PULLER ATTACHMENT

Occasionally difficulty is experienced in removing some of the Ford transmission gears. This work is facilitated by the use of the puller attachment shown. It is an old Ford rear wheel flange, cut away, so that it may be passed behind the gear to be removed. The puller hooks of a three legged puller are caught in these links and the gear removed.—Ed Rossler, The Smalley Garage, Toledo, Ohio.

(No. 1218) REAMING OVERSIZED HOLES

Twist drills, used in conjunction with a reamer, permit the reaming of almost any sized hole. The hole is first drilled and reamed to as near the desired size as possible. Then a small twist drill is dropped down one of the flutes of the reamer and the hole again reamed. This is repeated with the next sized drill and so on until the hole has the required size.—Paterson Auto Sales Co., Flint, Mich.

(No. 1219) INSPECTION MIRROR

In adjusting differential gears difficulty is often experienced in seeing whether the gears are meshing properly. A small pocket mirror, mounted on a soft iron wire handle, may be used in much the same manner as a dentist's mirror. Inspection or repair on many hidden and obscure parts is also facilitated by the use of this mirror.—C. S. Rowan, Buhl Auto Co., Jackson, Mich.

(No. 1220) PORTABLE TOOL BOX

One essential to efficient work is to have all the necessary tools on the job and yet not to have them all over the job. By mounting the tool box on a stand, that in turn is mounted on casters, all the tools may be taken to the job. But more important, the tools may be put in their proper places after use, instead of being scattered all around the car.—A. L. Johnson, Tremain Rankin Garage, Fort Dodge, Iowa.

(No. 1221) TIRE TOOL STAND

All tire tools may be kept together and may be quickly moved to the car when they are needed. The stand has three trays, one deep and two shallow, and are mounted on a T-base. Swiveled casters are secured to each end of the T, permitting the stand to be readily moved. The tools carried are: 1 jack, 1 hammer, 4 tire tools, 2 special tire tools, 1 screwdriver, 1 oil can, 1 tire brace wrench, 1 can talc and 1 tire gage.—F. A. Seeman, Interstate Auto & Supply Co., Davenport, Iowa.

(No. 1222) ENGINE STAND

This stand is particularly adapted to work on the Hupmobile, Buda or Continental engines, though it might readily be used for many other makes.

It consists of two cast iron uprights, bolted to the floor, and carrying the engine on special hangers bolted to the engine supporting arms. These hangers are swiveled in bearings at the end of the uprights and permit the engine to be turned from the upright to the bottom side up position. In either of these positions the end of the engine is held up by a wooden block. Special hangers have to be used with each make of engine to permit attachment to the engine supporting arms.—Ed. L. Cousine, Grasser Motor Car Co. (Hupmobile), Toledo, Ohio.

(No. 1223) REPEAT ORDER BOARDS

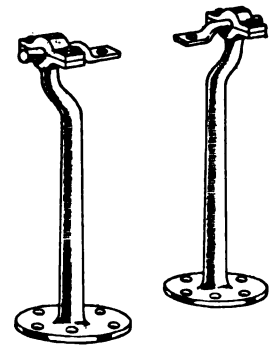
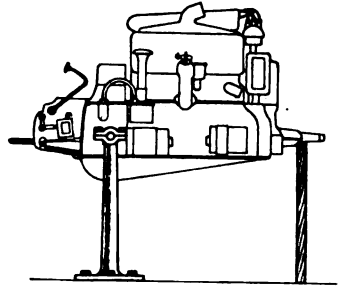
Certain orders are constantly recurring in the repairshop and may be most readily given by one of the repeat order boards illustrated. Several boards, about 9 in. long and 4 in. wide, are painted and lettered with the desired order. Then when the job comes in the foreman can quickly give the order without looking up the proper workman. This is also a convenient way of leaving night orders.—Ernest Coffman, Ford Service Station, Louisville, Ky.

(No. 1224) DOORWAY GUARDS

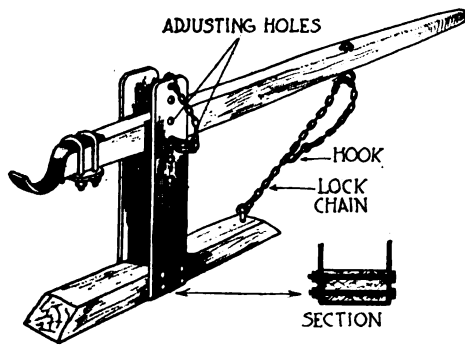
Garage doors are frequently knocked off by cars that are backing out. This may be prevented by placing guard rails on the inside of the exit. If the floor is wood the guards may be wood; if concrete, concrete rails may be constructed. In either case the rails should be about 4 in. high, of semi-circular section, and converge at a point about 6 ft. from the doorway. In backing out the wheels are forced to the center of the drive, lined up, and the car caused to leave through the center of the doorway.—Paterson Auto Sales Co., Flint, Mich.



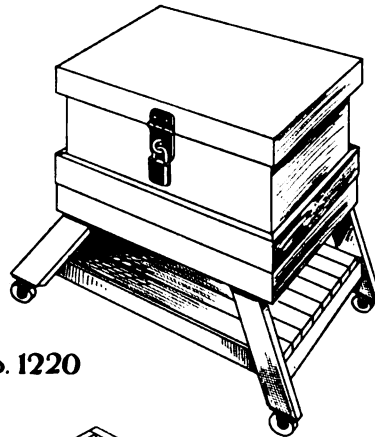
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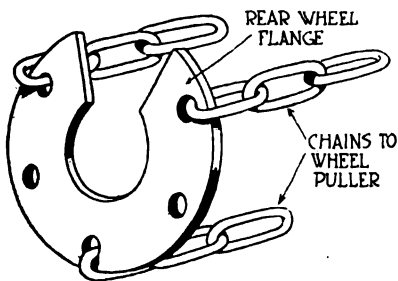
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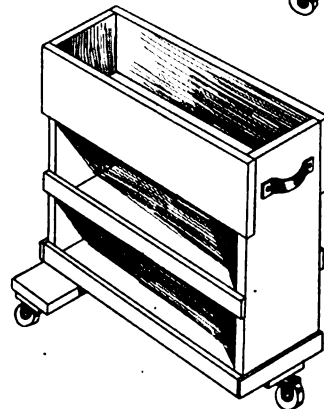
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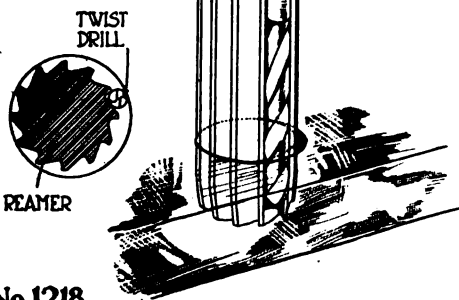
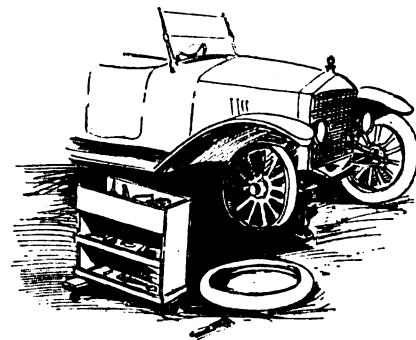
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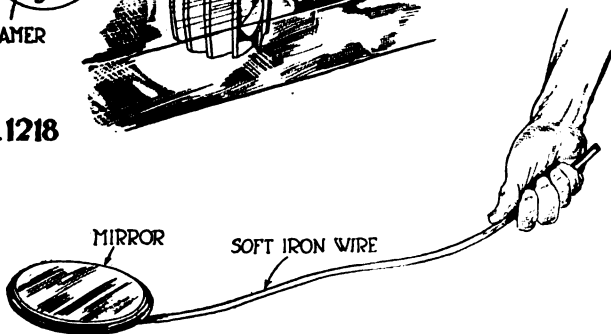
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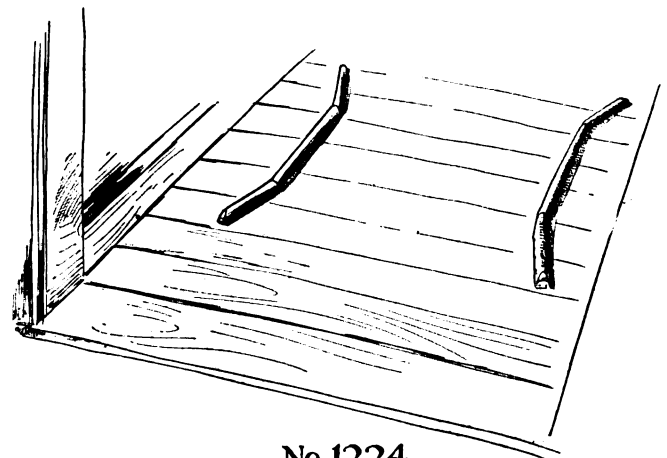
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No. 1224

Editorial Observation

Why?

IN the face of the opinion of those who are in the best position to know whereof they speak, one jobber, and perhaps others, has commenced to circularize his trade and to urge that they shorten the terms of credit upon which they are doing business with their retail customers.

There is no justification for any action of this kind. To suggest a shortening of credit terms at this time is *directly contrary to the best interests of business*. In fact it is the worst possible business policy, for such action would automatically curtail trade and effectually throttle the constructive effort toward logical expansion which those at the head of the government are urging and which common sense dictates as good business.

Why should there be any need for a shortening of credit terms? The country to-day is more prosperous than it ever was before. The amount of money in the savings banks is greater than ever before. The money in the Federal Reserve Banks has touched new high levels.

The money which the government is raising through the Liberty Loan is not going to be taken out of the country. On the contrary, it is going to be spent right here. The farmer is going to get this money; and the industrial plants all over the United States are going to get it. *And these in turn are going to pass it right along to the retail merchant. The retail merchant, by all present signs, is going to do the greatest business of his career in the next few months.*

Business is not going to be bad. It is going to be good, mighty good. But it is going to be different. There is going to be an expan-

sion. Merchants are going to handle new lines of goods. They are going to increase the volume of sales.

Why then should jobbers and manufacturers consider any shortening of credit terms?

To shorten credit now is a sure way to start a panic. That is the way all panics are started. That is the way a run on a bank is started. Suppose the banks of the country were to send out letters to-day saying that they might not be able to pay their depositors one month hence because of war conditions and suggesting that customers be not surprised if their checks are not honored at the end of a month?

Again, what would happen if manufacturers and jobbers in general even suggested the possibility of a shortening of credit terms. The retailer would draw into his shell and an order could not be pried loose no matter how enticing.

A general suggestion of a tightening of credit terms now would be nothing short of a national calamity.

The best part of this situation is that there is no need for any such action.

The majority of manufacturers and jobbers know that there is no *reason* in such suggestions.

What we must do, and do quick, is to step down hard on calamity howlers.

If there ever was a time when there was no place for calamity howlers it is to-day.

Every manufacturer, jobber and dealer in this industry has a part to play in the business of increasing the country's prosperity.

You have a part, and a big part.

PLAY THAT PART IN A BIG WAY.

THE FARM TRACTOR

This is the third of a series of articles which will take up in an analytical way those features of tractor design that will assist the dealer and garageman to a better understanding of manufacturing, merchandising and maintenance in this field

What Arrangement of Wheels Is Best?

3

WAR has given the farm tractor industry an impetus that

will accelerate production

ten times as much as it could be accelerated in normal peace times. This means that there is bound to be a certain amount of experimenting and developing in order to discover the best kind of tractor to fill the wants of the farmer and to equal the facilities of tractor manufacturers and meet the limitations of modern materials.

It is in general layout that experiment seems to offer the best promise to-day. The engines at present being used are good enough; the transmissions are good enough; ordinary soundness of engineering and workmanship will insure against mechanical breakdown in any other part. It is in the utilization of the power available that the greatest opportunity for variation is to be found, and it is here that there is enormous scope for inventive ingenuity.

The farm tractor is the only vehicle which has ever been developed without the assumption that it was to be used on some kind of a prepared road or track. Designers of motor cars had at least some experience to guide them in the development of locomotives. Really, however, their problem was far different from that of the locomotive engineer; and the problem of the farm tractor designer is less closely related to that of the motor car or motor truck designer than was the problem of the automobile man to that of the railroad engineer.

In road vehicles we have had front and rear wheel drive, we have had two, three and four-wheeled layouts, we have had four-wheel drive. Time has proved that we can make successful machines of all types, and that each type has its special sphere of usefulness. So with the tractor, the multifarious methods of

Applying the Engine's Power

driving may easily all persist; that any one form will oust all others is extremely improbable, how-

ever far into the future we may be inclined to peer. Because the four-wheel machine with rear-wheel drive has proved to be the best for most road work, an engineer naturally turns to the same system for a tractor, unless he has ideas that lead him away from it. He will use this system unless there is a very good reason for not doing so. But it does not follow that this is the best general system for tractors. It may be that it is, but we ought not to be in too much of a hurry to believe it merely because of past experience with road vehicles. Nor should too much weight be given to the fact that those tractors which are conspicuously the best engineering jobs to-day have, most of them, the four-wheel, rear-drive layout.

In road vehicles we do not have to trouble much about the weight on the driving wheels either way. That is, we can be sure of enough to give traction, and the road is normally hard enough to support a considerable pressure per square inch of surface. With a tractor, both traction and unit pressure are important; in some instances they are of paramount importance. It is accepted by nearly all tractor engineers that there is certain agricultural work which can be done better by a track-laying type than by any other machine, because it gives the maximum traction with the minimum unit

pressure. Where the advantage of the caterpillar really begins to be offset by the greater simplicity of the wheeled machine is the big question, and to decide it will take some years.

Between the two-wheel drive, on the one hand, and the tracklayer on the other

(Continued on page 42)

Would it be possible to put some kind of a demountable tread on tractor wheels to cover the big spikes and make the tractor more suitable for use on hard roads? A suggestion of this kind is made in this article.

The RETAIL NEWS

EAST

Post & Lester Co., Hartford, Conn., has taken on the Pennsylvania tire.

H. D. Foster, Hartford, Conn., has resigned as sales manager for Frank G. Robins, Inc., Saxon distributor.

S. A. Miner, Hartford, Conn., distributor of Pierce-Arrow pleasure cars and trucks entertained 20 of his men at the Hotel Bond this week.

D. F. Borthwick, formerly of the Electric Storage Battery Co., has taken charge of the Hartford Storage Battery Co., 120 Allyn Street, Hartford, Conn., Exide service station.

S. A. Foster, Hartford, Conn., has resigned as sales manager of the Britton Co., Stearns-Knight distributor, to enter a different field.

William A. Greene, formerly automobile editor of the Hartford Courant and later with Washington papers, has been appointed advertising manager for William J. Chipman, 244 Pearl Street, Hartford, Conn.

Jordan Motor Sales Co., Hartford, Conn., has opened a salesroom at 48 Union Place.

Whitco Auto Service Station, Manchester, N. H., has opened.

Granite State Motor Co., Manchester, N. H., has been formed to handle the Alibott.

McCarthy-Meyer Co., Boston, Ross, Lozier and Abbott dealer, has moved into a new building.

Macbult Truck Co., Cambridge, Mass., has moved to Boston.

Pittsburgh Nash Co., Pittsburgh, has succeeded L. G. Martin & Son as distributor for Nash cars throughout western Pennsylvania, Ohio and West Virginia. L. G. Martin and his son are still in charge of the business, having only changed the firm name.

Monitor Motor Sales Co., Pittsburgh, distributor of Monitor cars for the Pittsburgh territory, will move into a new salesroom at 2357 Sheridan Ave.

Acorn Motor Sales Co. of Center Avenue, Pittsburgh, is now distributor for the Smith Form-a-Truck in the Pittsburgh territory, having succeeded the Smith Form-a-Truck Co. of Pittsburgh.

Martin-Whitehill Co., western Pennsylvania distributor for Republic Motor Trucks, has taken possession of its new salesroom and service station on Center Avenue at Euclid Avenue, Pittsburgh.

C. J. Scott of Sharpsburg, Pa., has taken over the Maxwell Agency for Sharpsburg, Etna, Millvale and Aspinwall.

SOUTHWEST

A. R. Wilder, Council Groves, Kan., is the new proprietor of the Eclipse Garage and is agent for the Maxwell.

New Madrid Motor Car Co., New Madrid, Mo., has opened offices.

C. W. Wood, Des Loge, Mo., has sold his garage to the St. Francis Motor Co.

J. C. Headren, Bethany, Mo., has purchased an interest in the Passiak Garage.

Fred Shaw Motor & Supply Co., Tulsa, Okla., is in its new building.

Tanner Motor Co., Winston, Mo., is the new agent for the Ford in this and surrounding territory. The company will handle accessories.

Wesley Maulding, Seneca, Mo., has purchased an interest in the Johnson Garage.

W. J. Sanford, Washington, Kan., has purchased the Tipton & Gates Garage.

Hutchinson Service Co., Hutchinson, Kan., has been appointed a service station for Prest-O-Lite batteries.

C. M. Drennen, Arkansas City, Kan., has purchased the interests of E. H. Hill and R. F. Howard in the Hill-Howard-Drennen Motor Co., and is now sole owner. The firm will be known as the Drennen Motor Co.

J. A. Beckett & Son, Greensburg, Kan., have bought the C. Y. Brown salesroom and have added the Stutz agency. They also handle Hudsons and Buicks and will install a service station.

Zachelle Bros., Burlington, Kan., have opened a battery service station.

John Markley, Abilene, Kan., has opened a salesroom and will handle Chevrolets.

R. E. and Charles Nichols, Clinton, Mo., have purchased the Miller Garage.

Earl Johnson, Seneca, Mo., has purchased J. H. Roark's interest in the Roark & Johnson Garage.

Southern Motor Co., Medill, Okla., is occupying a new building.

Haynes Motor Sales Co., Fort Smith, Ark., is in its new building. It also handles the Oakland and the Chandler.

Will C. Triesch, Fort Smith, Ark., has bought a half interest in the local agency of the Dodge.

Chevrolet Motor Co. of Missouri has turned its retail department in St. Louis over to the Bradle Motors Co. The Bradle company has handled the Westcott car. This car will be sold in connection with the Chevrolet in the salesrooms occupied by the Chevrolet Co. in the triangular building at Locust Street and the Lindell cutoff. James Cathay, manager of the retail department, will go to Memphis for the Chevrolet Co.

International Motor Co.'s St. Louis branch will install drill press, grinders, lathes and blowtorches for truck repairing.

Park Automobile Co., St. Louis, has installed a complete paint shop to turn out special color jobs on the Chalmers and Peerless cars sold.

G. M. Bicknell, St. Louis, has been appointed salesmanager of the Carter Carburetor Co. of that city.

C. H. Gray Rubber Co., Dallas, has enlarged its quarters.

Knight Tire & Rubber Co., Dallas, has moved into new quarters on Commerce Street.

Mitchell Automobile Co.'s new building, Dallas, has been completed.

H. Creswell, Phoenix, Ariz., has remodeled his garage. He will handle accessories.

New Garages

S. Simmons, & Minturn....White City, Kan.
James Dugger.....Ionia, Kan.
W. T. Pate.....Charleston, Mo.
Lilly & Crenshaw.....Rocky Comfort, Mo.
Oscar Ross.....Rossville, Kan.
William Schropp.....Hanover, Kan.
H. M. Wierk.....Hesley, Kan.
M. Bolles.....Garnett, Kan.
Carpenter Garage.....Laredo, Kan.
L. P. Jones.....Ray, Ariz.

MIDDLE WEST

Detroit Motor Sales Co., Detroit, has opened a store at Michigan Avenue and Roosevelt.

Thomas Brooks, Highland Park, Mich., has secured the agency for Chevrolet. Mr. Brooks will soon erect a garage.

Algonquin Garage, Algonac, Mich., is under new management, Stapley & Howe now being the proprietors.

Wedel & Cooper, Buchanan, Mich., have taken over a garage.

Acason Motor Truck Co., Detroit, is to erect a garage on Brooklyn Avenue.

Schmelze & Brey, Forestville, Wis., motor cars, tractors and farm implements, are establishing a branch office and sales agency at Maplewood, Wis., which will occupy a new garage and service building now under construction.

Hatch & DeGross, Delavan, Wis., Mitchell dealer, have been given the Walworth and Rock County territory in southern Wisconsin, with the exception of the city of Beloit. A salesroom will be opened on Milwaukee Street at Janesville.

Madison (Wis.) Tire & Service Co. has opened a salesroom and service department.

Alfred Reeke Co., Milwaukee, state distributor of the Jeffery Quad truck, and local dealer in Milwaukee for the Jeffery passenger car, has been appointed state distributor of the Vim commercial car.

Osmond Motor Car Co., 215 Wisconsin Street, Milwaukee, has elected Harry DeBoer secretary of the corporation and placed him in charge of the wholesale department, covering Wisconsin and Upper Michigan for the Chalmers. Mr. DeBoer succeeds H. M. Vogel, who retired recently. N. E. Osmond is president and general manager of the company.

Soerens & Holtz, 100 North Avenue, Milwaukee, retail Ford dealers, have incorporated their business under the name of The Lincoln Motor Car Co. The capital stock is \$25,000 and the incorporators are Walter Soerens, George T. Holtz and George Clark.

Kern Hunter, Inc., Milwaukee, state distributor of the Troy trailer, has moved to 208-210 Wells Street, where showrooms and service station are available.

C. A. McCommonc, Clinton, Wis., has sold his public garage and accessory sales business to J. A. Christiansen.

New Garages

Groves Automobile Co.....Flint, Mich.
Girardin Bros.....North Branch, Mich.
Edward S. Smith Garage.....Grand Haven, Mich.
William Schavey & Sons.....Grand Ledge, Mich.
W. Heck & Son.....Antigo, Wis.
Valley Inn Garage (60 x 150).....Neenah, Wis.
John A. Hackbarth (36 x 120).....N. Milwaukee
W. F. Hagen (50 x 150).....Manitowoc, Wis.
Velle Motor Sales Co.....Milwaukee
Raymond Wood.....Holly, Mich.

COAST

Spokane Overland Co., Spokane, has leased a garage at South 118 Walnut Street, and opened a service department.

James A. Henderson and **W. E. Freeman**, Butte, Mont., have opened an automobile clearing house in the Holland Rink.

Fosdick Auto Co., Spokane, received a shipment of 12 large barrels of Legalite lenses, which will be used by car owners to replace the present lenses in headlights, when the new anti-glare law goes into effect. This is the largest shipment of auto accessories ever received by one firm in Spokane.

Gilbert & De Witt Co. and Hood River Garage Co., Hood River, Ore., have merged.

Bremerton Motor Car Co., Bremerton, Wash., has opened a salesroom, garage and machine shop.

Central Auto & Supply Co., Toppenish, Wash., has opened a garage and supply establishment.

Auburn Garage, Auburn, Wash., has taken over the agency for the Overland cars.

Morgan & McManny, Los Angeles, have added a machine shop.

Cleveland Standard Tire & Rubber Co., Los Angeles, has opened a salesroom at Pico and Hill Streets.

Eddie Lingenfelder, Los Angeles, who for several years has been manager of the Los Angeles branch of the Goodyear Tire & Rubber Co., has resigned to enter the tire business in partnership with F. C. Rounds.

E. J. Day, Oakland, Cal., has retired from the supply business.

Roy G. Phillips and Theodore G. Katell, Oakland, have purchased the business of R. Shanholtzer at Fifth and E Streets, and will conduct a service station and tire store. Shanholtzer has gone to Los Angeles, where he will open a service station.

Chandler Lyon & Co., Oakland, are erecting a building at Twenty-fifth and Webster Streets. The firm is a branch of the San Francisco and Los Angeles houses of the same name.

Howard Automobile Co., Buick distributor in San Francisco, Oakland and Los Angeles, has opened a branch in Pasadena.

New Garages

Paige Motor Sales Co. (43 x 60).....Seattle

NORTHWEST

C. W. Conway, Zearing, Iowa, has bought out the Switzer Auto Co.

Joe Piper, Shenandoah, Iowa, has sold the Piper Garage to Raymond & Haas.

H. D. Riggs, Barnes City, Iowa, has sold his garage to Don Beason.

P. B. Dale, Story City, Iowa, has taken over the interest of Mr. Erickson, his partner, in the East Garage. The latter has joined the army.

F. Orsinger and James Parker, 1527 Clay Street, Dubuque, Iowa, have entered the truck business and will sell the C-V-M and the Maxfer.

Sandstone Garage Co., Sandstone, Minn., has been organized.

Commercial Auto Supply Co., Minneapolis, is the name of a new firm. It will handle Parry Commercial bodies and truck extension bodies.

New Garages

Elias Burnett.....Mount Vernon, Iowa
Art Glass.....Postville, Iowa
Houlton Garage.....Ireton, Iowa
Lamonth Auto Co.....Algona, Iowa
Ray Wood.....Union, Iowa
White Way Garage (60 x 90)....Adair, Iowa
Grover Horstman (30 x 80)....Big Rock, Iowa
Spaulding Bros. (50 x 130, 3 stories).....

Aberdeen, S. D.
Fred Hawley.....Brandt, S. D.
F. W. Potter (24 x 36).....Flaxton, N. D.
Cockburn & Lingenfelder.....Linton, N. D.
Griffith Bros. & Co. (42 x 100)....Conrad, Mont.

MOUNTAIN

L. G. Johnson is now manager of the Globe Tire Sales Co., Denver, Globe tire distributor

for Colorado. He was formerly manager of the Quick Tire Service Co.

J. S. Morrison has been made district manager for the Nelson car in the Rocky Mountain territory and practically all the territory west of the Missouri River, with headquarters in Denver. He was for several years head of the J. S. Morrison Automobile Company, present distributor for the Allen.

Harry G. Mook is now retail sales manager for the All-Year Motor Co., Kissel and Mercer distributor for Colorado, New Mexico and Wyoming. He was formerly president of the Mook Motor Sales Co., Denver.

New Garages

Mooney & Douglas.....Pocatello, Idaho
Fisher & Nauer.....Saco, Mont.

Service Book Keeps Track of Costs

Tells Iowa Dealer All Sorts of Details About His Service Work

A SERVICE coupon book that has many advantages is used by the White Way Garage, Washington, Iowa. A book and description of its use have been sent to Motor World by Bert C. Smith, one of the proprietors, and no better description of the plan can be given than appears in Smith's letter, which follows:

Editor Motor World:

I am inclosing a sample of our Service Book for your inspection and publication, if you feel that it is worth the room. There have been a great many dealers in this locality interested in it and asked me to send you a sample of it.

At first glance you might say it is a good thing, but when you study into the advantages you will say it is a Real good thing.

The book was put out first with the intention of keeping an exact check on our shop, and the cost of the service necessary to keep our cars running a year. This is a thing that few dealers know.

Service Book With Every Car

When we sell a new car we give with it a Service Book free. We fill in the owner's name, also the make and number of the car. Each book is numbered, and this number is registered on the sales card and filed away.

When the customer comes in for any adjustments the mechanic that does the work tears out coupons for the number of hours work done on the car and writes on the back of the coupon what he worked on. In this way we are able to tell at the end of the year what part of the cars we sell is giving the trouble.

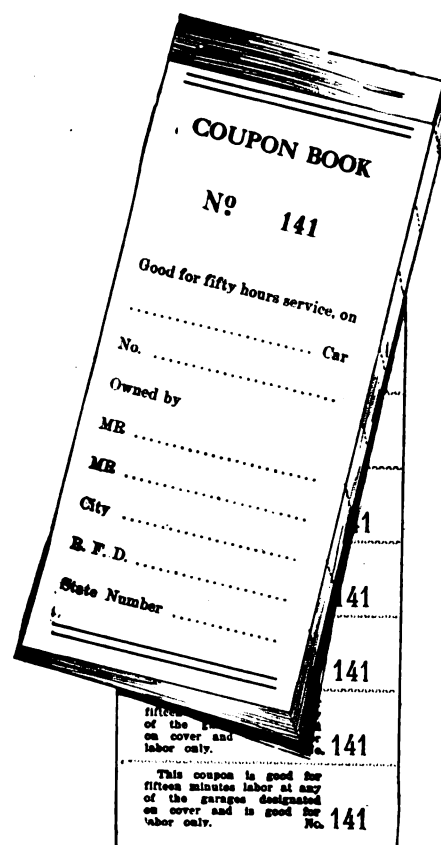
The coupons are turned in at the office and the mechanic that did the work is given credit on his time; the coupon is then filed with the sales ticket of corresponding number.

Another feature of the book is that we have made arrangements with garages in the surrounding towns to receive these coupons for service, which they mail to us and we acknowledge them with a check by return mail.

We also insist that these subagents

issue these books to their customers, so that when one of their customers brings his car to us for adjusting, our mechanics get coupons for their work and the subdealer is responsible for the coupons and must redeem them at 60 cents per hour, which is the regular rate for labor here. Heretofore we have done this work for nothing and the subdealer has received the profit.

The book also makes it possible for us to sell new cars in towns where we have no dealers, as we have a written contract with some repairman in that town to look after our cars. It also makes a good argument to put up to a prospect. Each book is good for one year from the date of sale. No books are given with any but new cars, and we give no free service unless they have books. No books are sold.



The coupons must be presented by the man whose name is on the front cover

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Tire Dealer Has Lien

IT has just been decided in Oregon that a tire dealer who puts on tires which he has sold is an "Automobile Repairer," and therefore has a lien under the state provision which gives every repairman who has expended labor, skill and materials at the request of the owner, reputed owner or authorized agent, a lien on the automobile for the contract price of the expenditure, although he has surrendered possession of the car.

Suit was brought to foreclose a repairman's lien. It appeared that the dealer was engaged in the business of selling and repairing tires, and for that purpose kept qualified employees who removed old tires and put on new ones, and that when this was done the car would be left for a short time upon the street in front of the dealer's place of business where his employees raised the end of an axle, removed the bolts and pried the old tire from the retaining rim, scraped the rust off and attached the new tire and inflated the new tube.

These services were performed on several occasions for the car owner against whom the claim of lien was made for the \$115.45. It appeared that the owner's car had been sold by a corporation which had retained title to the car until the purchase price should be paid. The court said that the language of the statute which provided:

"Every * * * automobile repairer * * * who has expended labor, skill and materials on any chattel at the request of its owner, reputed owner or authorized agent of the owner, shall have a lien upon said chattel for the contract price for such expenditure * * * notwithstanding the fact that the possession of such chattel has been surrendered to the owner thereof," was sufficient to give the dealer a lien on the car and that the lien came before the claim of the conditional seller.—*Courts vs. Clark*, 164 Pacific, 714.

Who Is Responsible?

Editor Motor World: A lady brought a car to our garage and left it to be repaired. She left it in the driveway and to get some other cars out we had to back this car out. While running the car back into the garage an accident occurred. I drove the car into the garage, and because the clutch stuck I could not stop the car before it col-

lided with another car, spoiling the radiator and bruising the front fenders slightly.

I agreed at the time to replace the radiator and fix the fenders and recoat them, which would put the car in first class condition again. I agreed to do this provided they left the car in the garage. They refused to accept these terms; in fact, refused to accept any terms except that I replace with new parts all the parts that were damaged. The car is a second-hand one and I felt that this was asking too much. They took the car away, and I have received a letter from their attorney asking what kind of settlement I would make.

Cars are stored in our garage at the owner's risk, except theft. The lady made the statement, before witness, that the clutch was not working right so I do not feel that I am liable to damage.—*F. F. Gillette*, Star Garage, Corry, Pa.

Answer.—Your inquiry is an interesting one. It would seem that the woman is unreasonable if she desires all new parts added to her second-hand car. If you offered to repair the damage done—that is, put the car in substantially the same condition it was before the accident occurred—I think that would be enough.

The chances are that you would be held responsible in a case like this, even though the clutch did stick. Of course, if you had knowledge that the car was left in the driveway the courts will infer that you expected to move the car. In a case like this I would stand by your original proposition, and if they are not satisfied with this I would let them start suit and then retain a local attorney to defend me.

On Wrong Side

Editor Motor World: We have had a case called to our attention where a motorcyclist was hit on a highway by an automobilist who was on the wrong side of the road. The automobilist refused to pay for the damage done to the motorcycle, claiming that as there was no license plate on the motorcycle he was not liable. The man riding the motorcycle was on a short business trip when the accident occurred. He had ap-

plied for a license 3 months previous and received it the day after the accident. Would the absence of the license plate invalidate the claim of the motorcyclist?—*W. J. Haines & Son*, Suisun, Cal.

Answer.—I believe that in Massachusetts, and in a few other states there have been cases decided to the effect that if a car meets with an accident while unregistered the owner cannot recover damages except for wanton recklessness on the part of the person causing the accident. If a man had applied for a license 3 months before an accident and received it the next day, I do not think the absence of the license plate would invalidate his claim, even though the license plate was in the mail at the time.

License Plate Query

Editor Motor World: If a man brings a car to our garage with a 1916 license plate and we repair it and run it out on the street to try it out are we liable under the law? The new license has been applied for?—*A. McDougall*, Cap-sac, Mich.

Answer.—I think that whether or not you would be liable for operating a motor vehicle without a proper license plate would depend to a great extent on when the application for the new license was made. If it was made within the time required by your State law, and the reason that the new license was not received is due to delay in sending it, I do not think you would be liable. If, on the other hand, the owner delayed applying for a new license until such a time as the law required that only 1917 licenses be displayed I think you would be liable.

Leakproof Wins on Book

ST. LOUIS, June 11—The McQuay-Norris Manufacturing Co. has been granted an injunction against Albertson & Co., Sioux City, with damages, by Judge Reed, of the United States District Court, at Sioux City. Judge Reed sustained the copyright of the McQuay-Norris Manufacturing Co. covering its book, "Dimensions of Piston Rings," and held that a book of piston ring sizes published by Albertson & Co. was an infringement. He issued an injunction against any further distribution of Albertson & Co.'s book; ordered undistributed copies of the book delivered to the complainant and assessed damages.

Are you losing money
on Used Cars?

Pages 9, 10, 11 and 12

Three Types of Berling Magnetos

Single-Spark Type for Cars and Trucks—Twin Sparks for Airplanes

THE Ericsson Mfg. Co., Buffalo, N. Y., manufacturer of the Berling magneto, is putting out three basic types of magneto. These are a single spark unit intended for motor cars and trucks, a two-spark type for high-duty requirements, such as airplanes and passenger cars, and a motorcycle type.

The Berling type D, two-spark, independent, and the type DD, two-spark dual have been designed for heavy-duty four, six and eight-cylinder models, in which the charge in the cylinder is ignited simultaneously at two separate spark plugs. The capacity of the D and DD types is sufficient to give suitable ignition for motors up to 200 hp. requiring a maximum magneto armature shaft speed of 4000 r.p.m.

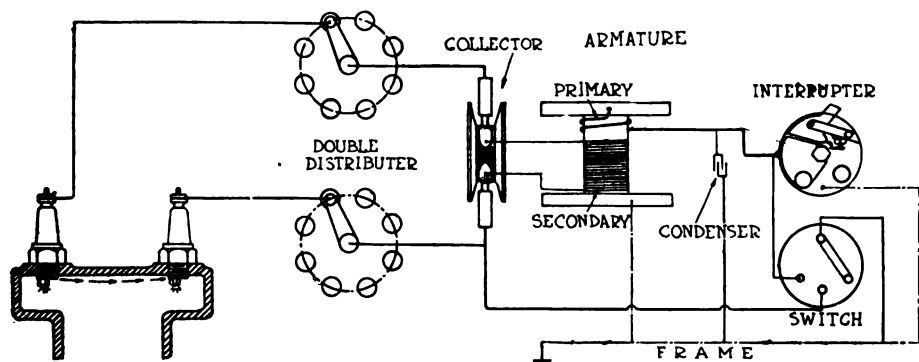
Current Carrying Parts Enclosed

The eight-cylinder types are designed to run at twice crankshaft speed, the sixes at one and one-half time crankshaft speed, and the fours at crankshaft speed. Particular provision has been made in this model to completely enclose all the high-tension current carrying parts, thus insuring positive operation under varying climatic conditions.

The primary difference between the

two-spark Berling magneto and the ordinary high-tension type supplying current to one spark only is that in the single spark plug type one end of the armature secondary winding is grounded to the frame of the magneto, from which it is electrically connected to the engine. The other end of the secondary winding is connected with the collector spool. On the two-spark type neither end of the secondary winding is grounded, but each is connected to one of the two separate segments on the collector ring. This construction furnishes two-point ignition, yet it permits the use of two standard spark plugs.

The distributor mechanism consists of



Circuit diagram of the type D Berling as used for airplane work

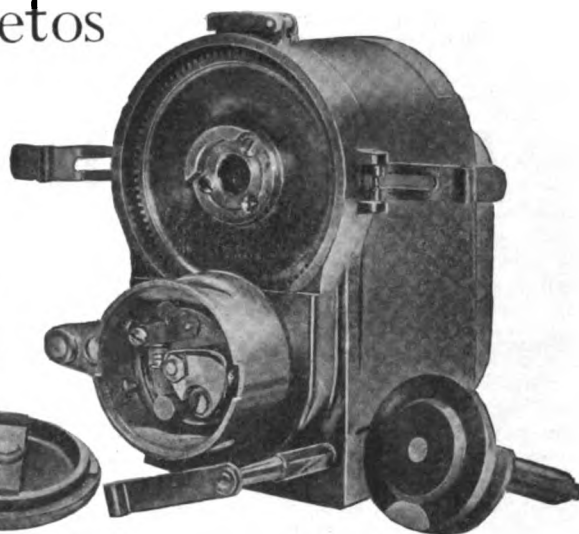


The type E Berling is completely waterproof

two separate distributor blocks and one distributor finger, carrying two separate distributor brushes, each brush connecting with the segments of its respective distributor block.

With this arrangement any two cable terminals directly opposite each other on the distributor blocks will practically possess an equal electrical potential relative to any part of the body of the engine.

The two sparks are secured by one break in the primary circuit and are simultaneous because when any two opposite cable terminals are connected to one of two plugs in the same cylinder,



The type E Berling is intended for cars, trucks and marine motors. It is a straight high-tension type

the electrical circuit of the high-tension current will be closed the moment the spark gaps are bridged and that portion of the cylinder between the two plugs forms part of the electrical circuit.

The type E Berling magneto is intended for a wide range of purposes, including automobiles, trucks, airplanes and marine fields. It is a high-tension type and a completely enclosed waterproofed unit. The frame is a solid unit to which the drive and interrupter end bearings are fitted, the magnets themselves being entirely covered.

One of the features is accessibility. The distributor can be removed by unsnapping the two holding springs on the end. The interrupter is adjusted by loosening an ordinary screw locking the platinum contact in place. The action of the interrupter can be inspected while the magneto is running. The collector brush holder can be removed by taking out two screws holding the upper portion of the driving end.

The Dual Type Magneto

The ED type is similar to the E except that it is a dual design and has in addition a battery interrupter and terminals provided for connection to a combined dash coil and switch. The dual type is particularly adapted for trucks where two sources of ignition supply are desired, and for marine engines where it is difficult to turn the engine over rapidly enough by hand to start on the magneto.

There is nothing particularly radical in construction. The instruments are straight high-tension types and are not departures from what is required as conservative practice in any degree. They are solidly constructed, and one of the particularly noticeable features regarding them is that the magnets have a higher retentive magnetism than the magnet steels which were formerly imported from the other side, according to tests made at the Ericsson factory. The points are platinum iridium. The Ericsson battery ignition system is continued.

A Department of BETTER MECHANICS

No. 27

Care, Repair and Adjustment of Ball, Taper and Roller Bearings

CARE OF BEARINGS

ANTI-FRICTION bearings, either of the ball, taper-roller, or roller type are usually so satisfactory in their operation that they cause little trouble in the repairshop. Most of the trouble that does happen is either the result of carelessness on the part of the repairman, or of the owner.

When bearings are kept in stock, the oiled paper and the oil on the surface of the bearings should be kept intact. Removal of the paper permits dust, dirt and grit to get into the highly finished parts, and if any moisture is allowed to collect on the bare steel, rust is formed. Grit or rust tend to break down the polished surfaces, and hasten the destruction of the bearing in use. Keep the bearings in stock well oiled, clean and protected.

Certain repairmen practice putting ground cork, sawdust, asbestos pigment, or an excess amount of graphite in the lubricant, to make the gears quiet. Though this accomplishes the purpose, it reduces the benefit of the lubricant that reaches the bearings. Remember that this is done at the expense of the life of the bearings. They will wear rapidly as a result of the foreign matters in the lubricant.

At least once every year, all the anti-friction bearings in the car should be removed, cleaned, and inspected.

In the cleaning of bearings, the aver-

age shop is lax. Often foreign material is washed into the bearing instead of being washed out. Clean kerosene should be used to wash bearings. In addition to being cheaper than gasoline, it leaves a film of oil that protects the bearing from rust.

A hot solution of caustic potash and water will be found very effective in cleaning bearings before inspection, but should not be allowed to remain on the bearings for any length of time. This solution may be made by dissolving one

cup of potash to a pailful of hot water.

Immediately after immersion in the solution, the bearing should be thoroughly washed in clean kerosene, and inspected. If the bearing is to remain out of the car for any length of time, it should be dipped into a melted mixture of vaseline and cylinder oil, and wrapped in oiled paper. This will prevent rust, and keep the dust out. Even if the bearing is to be immediately replaced, immersion in the melted oil mixture will assure proper lubrication of all parts of the bearing from the start.

As stated, grit is one of the worst enemies of the bearing. In operation, this grit comes from the surfaces of the gear teeth, or from any wearing parts. Hence, when overhauling a car, all housings, gears and parts should be washed out to remove the grit. This is particularly true when the car has been taken down because of breakage, as the fragments of the broken parts may get into the bearing on replacement, and quickly ruin it.

Aluminum housings and cases in which anti-friction bearings are held should always be cleaned and shellacked on the inside, when overhauling is being done. For some reason, aluminum housings constantly throw off small flakes of the metal into the lubricant. These eventually get into the bearings, unless the surfaces be shellacked.

The lubricant to be used in bearings

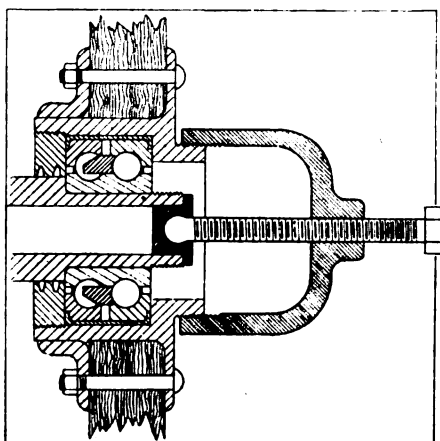


Fig. 1—When removing wheels containing ball bearings a puller should always be used if the wheel shows any tendency to stick

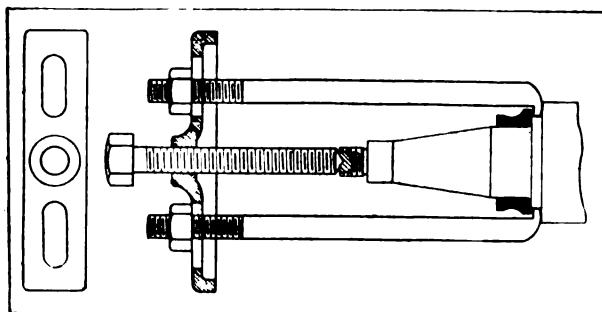


Fig. 2—Bearing races should not be driven from the axle but should be removed with an adjustable puller

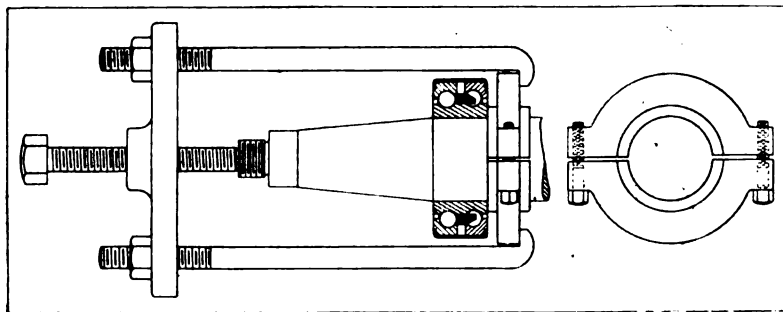


Fig. 3—This puller is for removing complete bearings. The strain is applied to the inner bearings by a split collar placed behind

depends upon the nature of the bearing. Light duty bearings, in magnetos, fans, and generators should be oiled with light machinery oil or else packed with a fine grade of vaseline. Heavy duty bearings, as in the gearbox and rear axle should be lubricated with the more heavy and viscous oils or greases.

But whatever grade of oil or grease is used, it should show no traces of acid or alkali. Lubricants containing either of these will either etch the highly polished surfaces, or else cake, preventing proper lubrication and greatly increasing bearing wear. Only lubricants produced by responsible manufacturers should be used.

High pressures should not be used when washing the car—not only because it destroys the finish, but because by it moisture is liable to be forced into the bearings. A small particle of rust can start wear that will eventually ruin a bearing.

The foregoing is general, and applies to all types of anti-friction bearings. The following treats of the particular types.

REMOVING BALL BEARINGS

If possible, a puller should always be used, when removing ball bearings, if the bearing shows any tendency to stick. A blow from a hammer is liable to distort the races, chip the balls, and place unnecessary strains on the entire assembly.

A simple rear wheel puller is shown in Fig. 1. It consists of a threaded cap, similar to a hub cap, but of heavier construction. After the removal of the hub cap, locking pin, lock nut and washer are removed, the puller is placed on the hub, and pressure applied through the pressure screw. By this, the removing strain is applied evenly on all parts of the bearing. If the bearing sticks, a sharp blow on the end of the screw, after tightening, will cause the wheel to quickly pop loose.

Fig. 2 shows an adjustable puller for use in removing bearing races. A knife or screwdriver may be used sometimes to pry the race loose, but if the race is to be used again, it should be pried with care.

When the entire bearing is to be removed, the removing strain should never be applied to the free race. Fig. 3 shows a split collar, to be used with the puller, for applying the strain to the inner race. If the outer race is the one that is sticking, some similar arrangement should be used.

Thus, when removing bearings, never use excessive force, or the bearing will be racked.

BEARING INSPECTION

Whenever possible the bearing should be taken apart for cleaning and examination. The balls and races should be examined for pits and wear. Any sign of pitting either in the balls or races renders a complete replacement of the entire assembly advisable.

Satisfactory action of a ball bearing depends on an accuracy of finished surfaces beyond the ability of the eye to detect. Hence if a defect is visible, in-

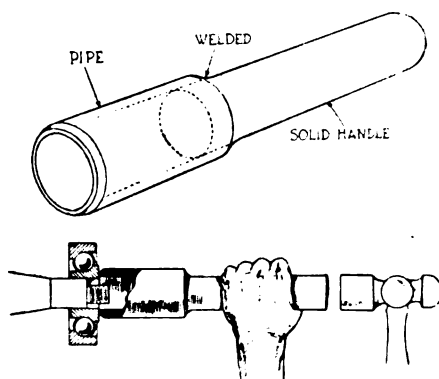


Fig. 4—Correct method of driving a bearing in place

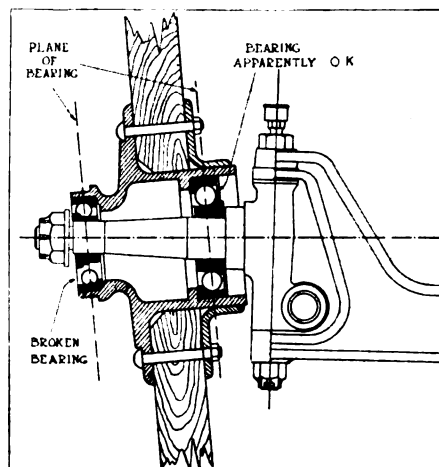


Fig. 5—Diagram showing how the destruction of outer bearing throws tremendous strain on inner bearing

visible defects in the other parts of the bearing are doubtless present. Therefore a new bearing should be substituted.

This is not always possible, and it is sometimes necessary to put in one or two new balls. When this is done, the balls inserted should be micrometered, and only balls of the same size as the balance in the bearing should be inserted. It is always a good plan to micrometer all of the balls, to see that they are the same size. A variation of about .0001 to .0002 in. is permissible, depending on the size of the balls. More than this throws the strain on the larger balls, quickly destroying them.

Destruction of one of the bearings of an assembly frequently necessitates replacement of the other bearing. Fig. 5 shows an example of this.

On tearing down the axle the inner bearing is found to be in apparently good condition. This, however, is only apparent, as when the outer bearing fails a twisting stress is placed on the inner bearing, causing a distortion that later tends to make the bearing fail.

For this reason, when one bearing fails in this type of installation, both bearings should be replaced with new ones.

REPLACEMENT OF BALL BEARINGS

The mounting of many ball bearings is so that the inner ring has a light drive fit on the shaft, and the outer ring is

a push fit in its housing. This allows a slow rotating or creeping action of the outer race, tending to distribute the wear.

In forcing the inner ring of the bearing onto its shaft, the force should be applied evenly around the face of the inner ring. A tool for forcing a bearing in place is shown in Fig. 4. It is a piece of pipe welded onto a solid steel shank. The inner diameter of the pipe should be such that the tool will slide over the bearing shaft, and the driving force should only be applied to the inner race.

In some cases it is the outer race that is a drive fit. Then any application of force necessary to drive the bearing in place should be put on the outer race. Always apply the force to that race that resists the force.

Many repairmen state that only the slightest amount of force should be applied to a race to drive it in place. If the race is forced into place it is placed under a strain that renders breakage easy. Not only that, but the race is made larger or distorted, either of which harm proper bearing action. Any force that is necessary should be applied evenly around the race, and then if the bearing does not go on readily, the shaft should be smoothed down with emery paper until the proper fit is secured.

Another point that must be observed is that the bearing must fit all the way into its seat. Otherwise it will be out of alignment and will throw any other bearing in the same immediate assembly out of alignment. Hence watch out for burrs or upsets on the shaft that may prevent the proper seating of the bearing.

BALL BEARING ADJUSTMENT

Ball bearings of the straight radial type must not be adjusted when worn. If they show considerable end play or looseness they should be replaced. Only bearings of the so-called cup and cone type can be adjusted. In most cases the cone is removable from the cup. Some makes, however, are self-contained units. Both types are designed to stand considerable side thrust.

Extremes are not permissible in ball bearing adjustment. The bearing must be neither too tight nor too loose. When too tight an injurious end thrust is placed upon the balls. When loose the bearings may quickly hammer themselves to pieces. The following rules apply to the adjustment of cup and cone ball bearings:

1—Pack the bearings with a good grade of light lubricant.

2—Bring the adjusting nut up tight. This will assure seating of all parts of the bearing. The adjusting nut should not be drawn so tight that an injurious strain is placed on the bearings.

3—Back off the adjusting nut slightly.

4—Spin the wheel, if possible. After a start the wheel should spin several revolutions.

5—Test the bearing for end play and looseness. There should be no end play, and the amount of looseness should be barely perceptible. If end play or looseness is evident repeat the adjustment.

6—Be sure to lock the adjusting nut securely in place by whatever locking device is used.

Some types of ball bearings are shim adjusted. In such cases the same shims that were removed from the bearing cap should be replaced on the assembly. If looseness is then present, .005 in. shims should be added, one at a time, until all looseness is removed. But there must be no binding between the parts of the bearing.

After the replacement of new bearings, especially in the wheel assemblies, tests for looseness should be made after the car has been run for about 100 miles. Further adjustment may be necessary after the bearings have adapted themselves to the running condition. When this final adjustment has been made the bearing will rarely require further attention for the balance of the season.

TAPER ROLLER BEARING ADJUSTMENT

The same principles that apply to ball bearing adjustment apply to taper roller bearing adjustment. The bearings must be neither too tight nor too loose. The following methods of adjustment apply to practically all bearings of this type:

1—Pack the bearing with a good grade of light lubricant.

2—Place the inner bearing in the hub.

3—Fit the grease retainer in place, being sure that it is grease tight, and that it is not pressing on the bearing, tending to keep it from its seat.

4—Bring the spindle nut up tight. It will do no harm if this nut is pulled up so tight that the bearing seems to be entirely locked. This will assure you that all the tapers are properly seated. However, no such pull should be applied through the nut that the bearings will be injured or the threads stripped. Just bring the nut up snug.

5—Back the nut off slightly, until the next castellation on the adjusting nut lines up with the hole in that shaft, if this method of locking is used.

6—Rap the wheel smartly from the inside out, all the way around the hub.

7—Try the wheel to see if it rotates easily.

8—If the wheel still binds, back the adjusting off a little farther and again test, after rapping as directed.

9—When the free condition is reached, grasp the wheel at diametrically opposite points, and pull it back and forth to detect any looseness. If the amount of looseness felt is more than barely perceptible the bearing is too loose and must be taken up further.

10—Lock the adjusting nut in position by whatever means is provided for that purpose.

11—Test again to see that the adjustment is correct, after the adjusting nut is locked.

The rapping of the wheel described in No. 6 is important. By this the bearing is freed to the limit of its adjustment on the adjusting nut. Otherwise the bearing might appear tight when in reality it was loose enough.

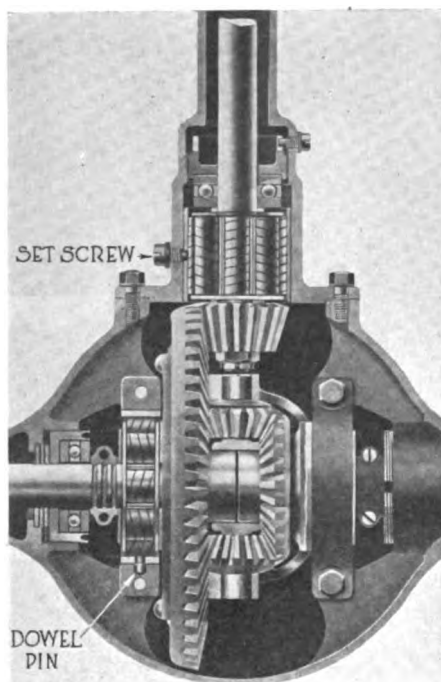


Fig. 6—Section through axle, showing use of dowel pin and set screw for holding roller bearings in position

HYATT ROLLER BEARINGS

Hyatt bearings require little attention beyond that noted in the general bearing care. These bearings are non-adjustable, and if wear is present replacement is necessitated as much by the function of the parts depending on the bearing as by the action of the bearing itself. A good rule to follow is that if all parts depending on the bearing work quietly and satisfactorily, even if the bearing is slightly loose, it may be

retained. This, of course, is only true when inspection shows that all parts of the bearings are in good condition.

The reason for this is that the Hyatt bearing is flexible, and any pounding from play or looseness is lessened by the oiled rolls.

When reassembling Hyatt bearing assemblies, care must be taken that all thrust washers are replaced in the place from which they were removed. The cage is held in place either by a press fit, by a dowel or by a set-screw. If by a dowel, it is absolutely essential that the dowel be replaced.

Replacing the Dowel

In replacing the dowel or set-screw care must be taken that the point does not extend through the cage. If this is the case, the part of the rollers beneath the dowel will be injured. Likewise, in removing the cage, any dowel or set-screw present must be removed first. In some old cars these are often painted over, or covered with grease, and hence not visible.

Occasionally the roller cage of a Hyatt bearing will become racked, causing looseness. In such cases it is advisable to replace the entire roller and cage assembly. In some cases it might be possible to re-rivet the cage, but there is always the possibility of throwing the cage out of true and binding the rollers.

When replacements are made on the Hyatt it is absolutely essential to perfect action that the bearing replaced be of the same number as that removed. Hyatt bearings may appear the same, and have the same dimensions, and yet differ in some detail that is not evident in the usual examination.

Ford and Maxwell Bearings

As an example of this, the pinion bearing of the Ford differential resembles the similar bearing used in some of the Maxwells. Some repairmen have attempted to use the Ford bearing in the Maxwell. These attempts have been successful when the repairman possessed sufficient skill to adapt the axle to the bearing, but usually this was not the case.

Each bearing is stamped with the number of that particular type of bearing, and a bearing of that number only should be substituted. The Hyatt company has made arrangements with the Bearings Service Co. so that any Hyatt bearing may be quickly obtained from the various branches.

Scrap Metal Prices

NEW YORK, June 11—Following are prices paid by New York dealers for scrap metal during the past week. They are from *Iron Age*:

	Cents per Lb.
Copper, heavy and crucible.....	28.00
Copper, heavy and wire.....	27.00
Copper, light and bottoms.....	25.50
Brass, heavy.....	18.00
Brass, light.....	14.00
Heavy machine composition.....	24.50
No. 1 yellow rod brass turnings.....	18.00
No. 1 red brass or composition turnings.....	19.50
Lead, heavy.....	9.50
Lead, tea.....	8.75
Zinc.....	7.00

Previous Articles

Subject	No. of Issue	Date
Overland—Main and connecting rod bearings.....	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains.....	2	Dec. 20
Maxwell—Rear axle repairs.....	3	Dec. 27
Chevrolet—Clutch repairs.....	4	Jan. 3
Borg & Beck—Clutch adjustments.....	5	Jan. 10
Hudson—Oil pump adjustments.....	6	Jan. 17
Reo—Clutch adjustment.....	7	Jan. 24
Buick—Rear axle adjustment.....	8	Jan. 31
Chalmers—Valve and ignition timing.....	9	Feb. 7
Dodge—Brake adjustment—Push-rod care.....	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care.....	11	Feb. 21
Cole—Adjustments of motor.....	12	Feb. 28
Palge—Oil level adjustments.....	13	Mar. 7
All Cars—Removing compression knock.....	14	Mar. 14
All Cars—Rebuilding the storage battery.....	15	Mar. 21
Cadillac—Rebuilding the radiator.....	16	Mar. 28
Ford—Magnet replacement on magneto.....	17	Apr. 4
Saxon—Clutch repairs and adjustments.....	18	Apr. 11
Timken—Rear axle adjustments.....	19	Apr. 18
Oakland 32—Oiling adjustments.....	20	Apr. 25
Ford—Overhauling axle in 1 hour.....	21	May 2
Hupmobile—Gearbox removal and replacement.....	22	May 9
Cleaning metal parts.....	23	May 16
Simplified directions for welding.....	24	May 23
Mudguard, body and lamp straightening.....	25	May 30
Carbon removal by oxygen process.....	26	June 6

Demountable Rim Patent Suit Withdrawn

Action by Perlman Charging That Firestone Infringed Dismissed by Court—Monopoly Under Patent Probably at an End—Perlman Said to Be Out

NEW YORK, June 12—One of the most sensational developments in the history of demountable rim patent litigation took place yesterday when the suit of the Perlman Rim Corp. against the Firestone Tire & Rubber Co., charging infringement of the Perlman demountable rim patent, was dismissed by Judge Hand without prejudice to either party. The motion for dismissal was made by counsel for the Perlman Rim Corp.

The dismissal of this suit would appear to indicate that the monopoly of the demountable rim situation under the Perlman patents is at an end. If the Perlman Rim Corp. wishes to substantiate its patent for the purpose of enforcing it, further suits must be brought. The decree of the court provides that all exhibits of both Perlman and Firestone be impounded and that all testimony taken in the case just dismissed shall be available for use in any further litigation between these two parties, or their representatives.

The future policy of the Perlman Rim Corp. in regard to enforcing its patent has not yet been determined.

It is understood that L. H. Perlman, president of the Perlman Rim Corp., has retired from all connection with the corporation.

Firestone was the defendant in the first suit brought under the Perlman patent, following the decision of the circuit court of appeals in February, 1916, affirming the decision of the district court of Aug. 18, 1915, which upheld the validity of the patent and declared it infringed by the Standard Welding Co. The suit against Firestone was brought in February, 1917, in the U. S. district court for the southern district of New York. Nothing was brought out in the evidence affecting the validity of the patent in any way, although the Firestone interests state that they had much new evidence ready to introduce when the case was dismissed.

The Perlman patent No. 1,052,270 was issued on an application filed June 29, 1906, which was a continuation of, and substitute for, an application filed May 21, 1906. Perlman's idea, he said, was to patent "a wheel whose demountable rim is bodily detachable from its fixed rim and felly, means being provided for firmly and rigidly retaining the demountable rim and the fixed rim and felly while in use, such means at the same time being adapted to be manipulated for enabling ready, rapid and easy removal of the demountable rim when desired." Features of the invention were the use of the separating wedge, the bolt and the nut in connection with a short stem lug and the provision of an air space between the fixed and demountable rims.

Suit was filed by L. H. Perlman against the Standard Welding Co., charging infringement of the patent, Oct. 7, 1913,

in the U. S. district court for the southern district of New York and a decision was handed down in Perlman's favor by Judge Hunt Aug. 18, 1915. This decision was subsequently upheld by the U. S. circuit court of appeals for the second circuit in February, 1916. An injunction prohibiting the further manufacture and sale of demountable rims by the Standard Welding Co. was issued March 8, 1916.

The Perlman Rim Corp. was formed soon after this with \$10,000,000 capital and negotiations were concluded whereby a number of manufacturers took out licenses to manufacture demountable rims under the Perlman patent. The Perlman Rim Corp. immediately entered into the active manufacture of rims, a large plant being secured in Jackson, Mich., which it is stated, is now producing approximately 4000 rims a day.

Form National Touring Body

CHICAGO, June 12—A new motoring organization, of national scope, was organized last night at the Chicago Automobile Club by the formation of the Touring Club of America. A tentative set of by-laws was drawn up and the following officers were elected: William G. Edens, president; William F. Grower, first vice-president; Arnold Joerns, secretary; Joseph E. Callender, secretary; Lucius Teler, treasurer. The object of the organization is to promote good roads, equitable motoring laws and to work for the interests of motoring in general. There is no initiation fee and dues are \$10 a year. This includes the Automobile Blue Book, radiator emblem, subscription to club magazine, free legal advice, touring information, etc. The Chicago Division of the Touring Club of America was organized last week as the nucleus of the national body and national officers will be elected. Headquarters of the parent organization will be in Chicago.

SHORT NOTES FROM THE FACTORIES

COVINGTON, KY., June 11—The United States Motor Truck Co. has purchased a large plot of land adjoining its factory here and will erect a new addition.

DETROIT, June 11—The Hupp Motor Car Co. is 600 cars behind in its deliveries. The company is producing cars as rapidly as materials markets allow.

DETROIT, June 11—The Detroit Starter Co. has increased its capital stock from \$150,000 to \$200,000.

BATTLE CREEK, MICH., June 11—The Advance-Rumely plant in this city

is arranging to manufacture \$2,000,000 worth of Oil-Pull tractors this year. The force of 400 men now employed in the plant will be doubled.

DETROIT, June 11—The Michigan Auto Trailer Co. has filed a petition of bankruptcy; liabilities \$5,993.31; assets \$10,088.27.

Detroit Used Car Show Starts

DETROIT, June 9—The used car show launched by the Detroit Automobile Dealers Association opened to-night to large numbers of prospects. Seventeen cars were sold Saturday night. Sunday morning buyers were on hand at 10 o'clock, when the show opened and a steady crowd throughout the day produced sales of more than 30 cars. As fast as the used cars are sold they are replaced with others. All cars have been inspected by a technical committee and are equipped with starters and electric lights. More than 300 are on exhibition. The show will continue for seven more days and is open daily from 10 a. m. until 10:30 p. m.

Higrade Completes Organization Details

GRAND RAPIDS, MICH., June 11—The Higrade Motors Co., organization of which was announced in a previous issue of Motor World, will sell \$115,000 worth of stock still in its treasury at \$10 per share, which is the par value. The company is incorporated under the laws of the State of Maine for \$250,000, all common stock with a par value of \$10 per share. Approximately \$135,000 has already been subscribed for. The Higrade truck is over 1500 lb. capacity and is expected will be the highest priced truck on the market. The price has not yet been announced.

Fageol Opens Its Plant

OAKLAND, CAL., June 9—The Fageol Motors Co. to-day celebrated the starting of its new \$500,000 motor car, truck and tractor factory. The day was celebrated by a program arranged by the Chamber of Commerce of Oakland which included a business men's lunch, automobile parade, addresses by Mayor Davie of Oakland, Frank R. Fageol, secretary of the Fageol Motor Co., and by Joseph H. King, president of the Oakland Chamber of Commerce. These were followed by flag raising and salute, ground breaking, motor car race of cars 15 years or older, and a speed race with a Fageol cars participating, and a demonstration of the Fageol tractor.

Drexel Sees Trouble

CHICAGO, June 12—Harry B. Staver, president of the Staver Carriage Co., was appointed receiver for the Drexel Motor Car Corp. yesterday by Federal Judge Carpenter. The court was advised that a \$12,000 reorganization fund has been raised. Thomas J. McFarland and Mark P. Bransfield, heavy investors in the company, have indicated their willingness to turn over \$500,000 worth of real estate to square up their debts to the company.

Makers Bid Low For Army Vehicles

Most of Them Reduce Prices 25% on Government Passenger Car and Motor Truck Requirements

CHICAGO, June 11—Motor car and truck manufacturers responded nobly to the call of Uncle Sam for military vehicles, as evidenced by the bids which were opened Friday, yesterday and to-day by Colonel Niskern of the Central Department Quartermaster Corps. Bids for the entire vehicle equipment of the United States Army, for which the Government called on all manufacturers three weeks ago, were submitted to the Chicago depot of the Quartermaster's department in response to the War Department's advertisement.

Passenger car makers to the number of 59 offered bids on two- and five-passenger cars. Bids ranged all the way from \$420 for Saxons up to \$3,500 for Locomobiles. Most of the manufacturers cut their prices approximately 25 per cent to the Government.

It was in the opening of the offerings of the 1½-ton and 3-ton trucks that the most interest was shown because these bids were called for originally on the army's standard specifications, which were drawn up with the assistance of the Standards Committee of the Society of Automotive Engineers.

The standard specifications depart to such an extent from the specifications of the manufacturers, as the trucks are built for commercial use, that few, if any, manufacturers could promise early delivery. Consequently, word was sent out from the Quartermaster's department that bids would be received on immediate or early delivery on trucks in quantities according to the manufacturer's own specifications.

There were 83 bids on trucks. These were on the two capacities and were submitted by 81 different manufacturers, most of them bidding on their own specifications, but many of them setting a figure at which they could manufacture

according to government specification within from 2 to 4 months.

On the light delivery truck of 1½, ¾ and 1-ton capacity, the bidding was not so heavy. There were 33 manufacturers who offered to build the lighter vehicles, and in addition, there were four makers of truck-forming attachments who offered to submit either the attachments alone for Fords or Dodges formed into trucks, in varying quantities and from immediate delivery up to 3 months.

Manufacturers as a whole cut their prices quite considerably in the Government bids, both on account of patriotic reasons and because quantity orders were anticipated. Anticipation of increasing prices affected many of the offers. Packard, for instance, set the date of August 10 as the time after which it would have to accept contracts at a considerable increase. Other concerns made a price on deliveries up to January 1 approximately 10 per cent lower than deliveries after that date. Other manufacturers put in a clause stating that their price was based on current material and part costs and would have to be increased in proportion as the costs increased. This averaged 10 per cent.

Many of the manufacturers took this into consideration by offering to build a truck to government specifications at a flat rate of cost plus a per cent. Willys-Overland offered to manufacture at a cost plus 15 per cent, and most of the others made their figures cost plus 10 per cent.

Some of the concerns offered to turn over their plants wholly or in major proportion to the Government for truck manufacture. The J. C. Wilson Co., for instance, offered to turn over 75 per cent of its capacity for government production, at cost plus 10 per cent basis, and stated it could turn out 6400 trucks

per year. The Denby Motor Truck Co. placed its entire production of 200 per month at the disposal of the Government on 4 months notice.

The Four Wheel Drive Co., Clintonville, offered to license other manufacturers to use its four-drive patent on government work.

Some unusual requests were brought to light in the matter of suggestions for government control of supplies, as for instance that of Charles E. Reiss & Co., who made a proviso in their contract that the Government guarantee delivery of parts.

Some of the big offers included those of Velie, which bid on any number up to 5000; General Motors, 1000; Nash, 5000, and 500 per month after the first year; Stegeman, 2000; J. C. Wilson, 4800; Willys-Overland, 10,000, at the rate of 500 per month on the big trucks, and 15 per day on the small ones. Studebaker is prepared to furnish 1200.

The lighter trucks were offered both with bodies and without, but there was a special call for government specification bodies for type A and type B trucks, and there were nearly 100 body manufacturers who made bids on service bodies with or without their canvas covers, and ran from \$200 to \$350 in price, and were offered in large lots such as that of the J. D. Brill Co., which said it was able to furnish 21,000 in the first year.

Plans of the War Department, so far as the awarding of contracts is concerned, are not announced, as yet. In fact, at the Central Depot here, the instructions regarding the bids, according to Lieutenant Ecker, are to make a digest of the bids, and forward them to Washington, for disposal at headquarters. Whether the contracts will be forwarded from Washington or Chicago is not known.

What the Government Will Pay for Cars and Trucks

Passenger Cars

Name	Rate of Delivery	Model	Net Price	Name	Rate of Delivery	Model	Net Price
Reo	15 per day	Roadster	\$825.00	Buick		E-"35"	\$795.00
Reo		S	825.00	Crow-Elkhart	150 per month	CE-"35"	760.50
Empire	8 per day	50	810.00	Studebaker	625 per month	4 Touring	738.75
Empire		51	873.75	Studebaker	325 per month	4 Roadster	738.75
Interstate	1 per day	5-Passenger	753.00	Moline	100 per month	"4"	1270.00
Interstate	1 per day	Roadster	715.00	Briscoe		"4"	725.00
Monroe	250 per month	M-"4"	850.00	F. F. Stearns	50 per month	"4"	1260.00
Monroe		M-"3"	450.00	Saxon	40 per day	2-Passenger	420.25
Overland	100 per day	85-B-"4"	760.65	Harroun	25 per day	Military Roadster	752.00
Overland	10 per day	85-B-"4" Roadster	748.00	Harroun	25 per day	Touring	687.25
Willys-Knight	10 per day	88-"4"	1185.75			After Nov. 1 Mil. Roadster	852.00
Willys-Knight	25 per day	89-"4"	1175.00			Touring Roadster	767.35
Scripps-Booth	100 per week	"4"	794.95	Monitor	15 per day	5-Passenger	895.00
Dodge	100 per day	5-Passenger Touring	735.00	Monitor	15 per week	5-Passenger	1095.00
Dodge	100 per day	2-Passenger Roadster	735.00	Marmon	100 in 40 days	6	2480.00

Name	Rate of delivery	Model	Net Price
Westcott	100 per month	6 Touring	1432.00
Reo		6-M	1200.00
Reo		6-N	1200.00
Moon	20 per week	6	1500.00
Velie	5 per day	6-27	1227.50
Jordan	25 per week	6	1400.00
Empire	8 per day	After Sept. 1	1475.00
Kissel	20 per day	70-A	925.00
Kissel	20 per day	6 Touring	1050.00
Franklin	50 per week	6 Roadster	1050.00
General Motors	250 per month	Oakland 6	1560.00
National	50 per month	A-6	850.00
Glide	50 per month	6-40	1618.75
Lexington	25 per day	6	1000.00
Grant	25 per month	K-6	1285.00
	After Aug. 1	G-6	657.00
Marion-Handley	100 per month	5-Passenger	755.00
Marion-Handley		5-Passenger	1140.00
Mitchell	50 per day	B-540	1650.00
Chandler	25 per month	6	875.00
Haynes (5-Passenger)	100 per month	6	1295.00
Haynes	100 per month	6	1355.75
Anderson	100 per month	6	1466.25
Chalmers	10 per day	5 Touring	906.50
Chalmers	10 per day	Roadster	
Chalmers	10 per day	7-Passenger	1095.00
Columbia	30 a day	6	1180.00
Buick		E-49	1495.00
Mitchell	50 per day	B-40	875.00
Mitchell	50 per day	C-42	1094.00
Patterson	3 per day		
Elgin	125 per month	5-Passenger	837.25
Studebaker	1000 per month	Touring	937.50
Studebaker	300 per month	Roadster	937.50
Davis		"6" H	961.25
Davis		"6" I	961.25
Davis		"6" J	961.25
Apperson	5 per day	"6"	1432.00

Name	Rate of delivery	Model	Net Price
McFarland	4 per month	"6"	2450.00
Singer	12 per month	5-Passenger	2575.00
Locomobile	100 per month	"6"	4500.00

EIGHT AND TWELVE

Lewis	5 per day	"8"	988.00
Knight	5 per day	88-"8"	1657.50
King	10 per day	"8" 7-Passenger	1250.00
King	10 per day	"8" 3 Passenger	1250.00
Cadillac	After Oct. 15, cost plus 10%		
Cole	20 per day	"8"	2097.50
	200 per month	"8"	1525.00
Stearns	After Jan. 1	"8"	1685.00
National		AK "12"	1880.00
Packard	100 per month	"12"	1968.75
			2592.00

MISCELLANEOUS

Nash	50 per day		1172.00
Cortland	50-75 by Nov		775.00
Nabob	25 per week		795.00
Overland	50 per day	90-Roadster	578.00
Anderson	25 per week		1000.00
Paige	10 per day	Fairfield	1000.00
Paige	10 per day	Stratford	1106.00
Paige	10 per day	Linwood	869.50
Paige	10 per day	Dartmoore	869.50
	After Dec. 1 cost plus 10%		
Seneca	4 per day		691.00
E. A. Nielson	1 per day	5-Passenger Touring	1100.00
E. A. Nielson		2-Passenger Roadster	950.00
Hoosier	75 per month		908.00
Hudson		7-Passenger	1278.75
Hudson		101-1000	1254.00
Jackson	10 per day		1000.00

After Sept. 1

Motor Trucks

DELIVERIES				PRICE			
	After Order	Per Mo.	Total	1½ Ton	A Body	3-Ton	B Body
Dayton	3 days	12	350			\$4000	Extra
Bowling Green			2000	\$2785			
Moreland		200	550	2250†		2880†	
Corbitt		10		2500†	\$200		
Selden	30 days	100	1500	2807		3716	
Master	5 days	100		2390†			
Burford	Immed.	100	2300	2463†		3813†	
Oneida	July 10	5	45	1855		2520	
White	July 1	200	5725	3150†		3800†	
Signal	August			2300†		3000	
Bourne Magnetic	August	25	450	2750†			
Schacht	August 15	25		2650†		3200	
Tower		25		1640			
Dort	30 days	100		2975†			
Kelly-Springfield	January 1	280		2600†		3442†	
Kelly-Springfield	January 1	280		3090*		3590\$	
Norwalk						2860	
Grove	October 1			1786†			
Pierce-Arrow	September	100-300	800	3500†		4300†	
Pierce-Arrow	January 1	250		3800*			
B. & M.		100	3000	3100* (With body)			
Staver						3950\$	
Winther	August 5		2500	2325†			
Gramm-Bernstein	July	66	759	2790*		3100\$	
Federal				2850†			
Velie	30 days	100	5000	1968†	305	2563†	336
Fagol		100		2700†	205	3750†	255
Republic	August 10			3500*		4500\$	
Garford	July	100	3300	2020†		2575†	
Brockway		100	1050	2730	255	3537	288
Wilcox	September 29	75	1492	2975*	255	3872\$	295
Wichita Falls		5		2200†			
Kissel	4 months	150		2950*		3800\$	
		75		2627*			
Atchison		50	750	2100†		2900†	
Moon		50	500	2400†	285		
General	Immed.		1000	2550*		3140†	
				2390†			
Dorris	Oct. 10	10	750	2443†			
Sandow	Sept. 1	20	300			2983	
Reo	30 days	75		1485†	144		
Pullmore		25	300			3000	
Consolidated	July		585	2155†	375		
			600	2250*			
Beasmer		225		2325†		3313\$	
				2413*			
Lippard-Stewart		70		3237	250		
				3300*			
Stewart	July	100	600	1785†			

DELIVERIES				PRICE			
	After Order	Per Mo.	Total	1½ Ton	A Body	3-Ton	B Body
Forschler	July	5		2055			
Hewitt-Ludlow		4		2850†		3950†	
Standard		125		Cost plus 10%			
F. W. D. (Riese)		100		Govt. to guarantee parts		3500\$	
Nash	45 days	250	5000	2465 (Quad)	Govt. spec. with exceptions		
F. W. D.	July 1	120	(910 Govt. spec. in 4 mo.)			3200†	
Stegeman		100	2000	2515*		2945\$	
Whit-Will			12	2300†			
Diamond-T	Immed.	250	975	2125		2965	
Day-Elder				1200†		1687†	
Armleder	60 days	75		2150†		2900†	
Denby	August 1	200	1050	2425†			
Wilcox	90 days	400	4800	2915†			
Sullivan		150		2200†		3058†	
Maccar	40 days	10		2350†		3400†	
Hannay Motors		2	3700				
United	30 days	25		2300†		2870†	
						3375\$	
United F. W. D.	Sept.	20 up		3250 or cost plus 10%			
U. S.		500					
Indiana		50		2562		3236	
Willys-Overland		500	10,000	Cost plus 15%			
Bethlehem	45 days	100 up	5000	2175	190		
Hurlburt				2350†		3900†	
				2550* Body inc.		4250\$	
Rowe			500	2595 Body inc.			
Locomobile	Immed.	100 up				3871†	
						4379\$ Inc. body	
International						4175\$	
Service	60 days	100		2900*	235		
				2500†		3000†	
Clyde	30 days	1000	2600	2465†		3290	
Beck	60 days	12		1950†			
Dineen	90 days	25 up		2996†			
Packard		500	3000	3474* Inc. body		4125\$ Inc. body	
Packard				3082 Inc. body		3536 Inc. body	
Packard				2803		3364	
	Govt. spec. with certain exceptions						
Atterbury		40	500			3500\$	
Acme		50	600			3000\$	
Noble			50	2100†			
Transport		8½	100			4380\$	
Cunningham	January 1	50	200			3000	
Strand		250					
Peterson		10	100				

†Bidding on makers' specifications.

*Bidding on Government Type A military truck.

\$Bidding on Government Type B military truck.

†Bidding on makers' specification, extra charge for steel wheels.

To Make Allen Steel Parts

ALLENDALE, OHIO, June 11—The Fostoria Pressed Steel Co. has been organized here for \$100,000 and will make all of the pressed steel parts required by the Allen Motor Co. Officers of the new

concern are: Henry Rothrock, president; George E. Kirk, vice-president; E. C. Wolfe, secretary, and C. D. Pifer, treasurer and general manager. The plant will have 20,000 sq. ft. of floor space at the start and will be of fire-proof brick construction.

Reo Declares a Dividend

LANSING, MICH., June 9—The Reo Motor Car Co. declared its regular 2½ per cent dividend to-day. It is payable July 2 to the company's stockholders of record June 15.

War Activities

Passenger Car Tax Put at 1%

Senate Finance Committee Finally Drafts This Section of War Measure

WASHINGTON, June 9—The Senate Committee on Finance has finally drafted the section of the war revenue bill under which motor vehicles will be taxed, and it has fixed this tax at 1 per cent, roughly, on the selling price of pleasure cars. No tax whatever is provided for on cars or trucks used exclusively for business. A total of \$40,000,000 is expected to be raised.

Under the schedule agreed upon taxes would be assessed as follows:

Machines originally listed at \$500 or less, \$5; from \$500 to \$750, \$7.50; from \$750 to \$1,000, \$10, and for those of greater value than \$1,000, \$5 for each \$500 above that amount.

A discount of 10 per cent per year from the original list price of each machine would be permitted.

Members of the committee express the view that this section will be agreed to on the floor of the Senate, and that the House will also approve it.

The provision in the House bill for an excess profits tax on manufacturing establishments of 16 per cent has been stricken from the measure. The Senate committee will adopt in lieu of this section a taxing plan similar to the English system.

The committee has yet to reach a decision on the proposed tax on newspaper and magazine advertising or the alternative, an increase in second class postage rates.

Locomotive Committee Formed

WASHINGTON, June 9—The Council of National Defense has announced the creation of co-operative committees on railway cars and locomotives, to serve with the committee on transportation and communication, of which Daniel Willard, Chairman of the Advisory Commission of the Council, is chairman. S. M. Vauclain, vice-president of the Baldwin Locomotive Works, is chairman of both co-operative committees. The other members of the two committees are: E. F. Carry, president, Haskell and Barker Co.; Charles S. Gawthrop, vice-president, American Car & Foundry; Olive Runnels, vice-president, Pullman Co.; R. L. Gordan, assistant to president, Standard Steel Car Co.; A. S. Reeder, vice-president, Pressed Steel Car Co.; S. P. Bush, president, Buckeye Steel Casting Co. Co-operative Committee on Locomotive: Andrew Fletcher, president, American Locomotive Co.; H. P. Ayres, vice-presi-

dent, H. K. Porter Locomotive Co.; Joel Coffin, chairman, Lima Locomotive corporation.

It will be the function of these two committees to assist in solving the problem of increasing American output of cars and locomotives through co-ordination of the efforts of manufacturers, and to aid in making as efficient use as possible of existing rolling stock.

Mechanics Enlisting

Factories and Service Stations Supplying Men—Their Pay

WASHINGTON, June 9—Motor car factories and the service stations of the country are being drawn upon for hundreds of mechanics, experienced and comparatively inexperienced, for service in the army both at home and abroad. That thousands of these mechanics will be needed, was stated at the War Department. Those who offer their services will enter as enlisted men at \$30 per month. This is in addition to their keep, in other words, their clothing, food, shoes, medical attention and quarters.

They may, if capable, expect reasonably rapid promotion, it being possible for them to go up to the rank of Sergeant, which pays \$72 per month.

Young men, not only from automobile establishments, but from colleges and technical schools, are enlisting for service in the field ambulance service abroad. In such cases they receive but a few cents a day, the same as paid privates in the French army. Also, they agree to pay certain of their personal expenses while in the service, putting up bonds for \$400 each before being accepted, to guarantee these. The French privates, while getting only a nominal compensation, however, have their families provided for by the government on a sort of pension effective during the service of the head of the family.

Marmon To Go To France

INDIANAPOLIS, June 10—Howard C. Marmon, of Nordyke & Marmon, recently appointed inspector of aeroplane engines for the United States Government, has been ordered to France and will depart in the near future to inspect aeroplanes in use on the French front with a view to standardizing and co-ordinating the engines of American flyers with those in the French machines. He will be accompanied by a large force of workmen and motor experts. It is not expected that Marmon will remain in France very long. He probably will return at about the time American manufacturers are ready to begin the manufacture of airplanes in large numbers.

Tractors Important in War

Use Not Confined to Any Section—Will Work Equally Well Everywhere

WASHINGTON, June 9—The situation with respect to an increased use of farm tractors as a concededly important step toward the successful prosecution of the war in the way of supplying foodstuffs for the army, and to aid the United States in helping to feed its allied countries has improved recently to a slight extent according to Dr. B. F. Galloway, assistant to the Secretary of Agriculture, but the desired improvement is not expected by Dr. Galloway until the more immediately pressing matters of war organization, including the question of munitions, etc., have been more fully taken care of.

This means that the raw material necessary in turning out tractors for farm use cannot be secured until the other demands have been met, at least in great part.

Arnold P. Yerkes, of the Farm Management Department of the Department of Agriculture, who has on file in his office detailed information touching the number of farm tractors now actually owned by operators of farms, and who is in close touch with the extent to which these tractors are being utilized, expressed the view that the only thing to do at present, aside from increasing the hours per week tractors are operated, is for all influences actively interested in this proposition to work to the end that the manufacturers of tractors may be able to get sufficient quantities of raw material to enable them to supply in part at least the demand for the tractors.

Yerkes points out that the introduction of tractors into farm work is not by any means confined to the middle western and other western states. Tractors are now in use in the more easterly states; Pennsylvania and others are using them in large numbers.

With the assistance of H. L. Horning, now connected with the farm and ordnance tractor division of the Government in an important advisory committee, due to his extensive knowledge of the situation, it is hoped that marked improvement in the time of operation of farm tractors, together with a possible increased output at the factories, will result. In fact, this already has resulted to an extent, with hopes for the immediate future.

Eight Motor Companies for War

DETROIT, May 26—Detroit has been asked by the Central Department at Chicago to furnish eight companies for the motor truck section of the quartermas-

ter's reserve corps. This means the raising of a regiment made up of truck drivers and mechanics. Captain William E. Dunn of the United States field artillery will superintend the work. The reason for selecting Detroit is ascribed to the success already enjoyed in enlisting one company and because Detroit is the center of the automobile industry.

Big Airplane Center

MILWAUKEE, June 9—It is reported on excellent authority that Duluth-Superior, the twin ports at the head of Lake Superior, are to be made the airplane producing center of the northwest. Within 60 days the Ackerman Wheel Co., Cleveland, Ohio, will establish an assembling plant in Duluth, and as soon as possible, a complete airplane factory costing about \$200,000 with full equipment, will be erected in the same city.

Dallas Wants Tractor Show

DALLAS, June 9—Within the next few days a meeting of tractor dealers in Dallas will be held to consider a tractor demonstration to be conducted by local dealers. Should this be held it will take place in July and will be staged on the tract of land where last year was staged the National Tractor Demonstration. Should the dealers decide not to hold this demonstration it is a certainty that one will be held during the State Fair in October. The dealers are planning to divide the expense for the demonstration.

Private Show by Mitchell Dealer

MILWAUKEE, June 9—To stimulate business at the advent of the touring season in this vicinity, the Mitchell Automobile Co., Mitchell distributor, conducted a private show in its main salesroom and service building from Tuesday, June 5 to Saturday, June 9. The rooms were decorated in patriotic designs and cut flowers and a large talking machine furnished music. Moving pictures of the Mitchell factory were shown each afternoon and evening. A stripped chassis and a number of special-finish open and closed cars were brought from the factory for the purposes of the show. Wednesday evening was designated as "Engineer's Night"; Thursday, "Ladies' Night"; Friday, "Mitchell Owners' Night", and Saturday, "Patriotic Night." Of course, no admission fee was charged. The event was widely advertised in the daily newspapers. One advertisement said: "The Livest Motor Show that Milwaukee has ever seen—that's what many of our friends said who visited us last night. We believe you will agree with them after you attend. You won't be exhausted by walking around a huge building filled with hundreds of cars, most of which you are not particularly interested in. You will see a most interesting exhibit of great motor cars—Mitchells—in a wide range of models. No blaring brass bands, but an abundance of genuine hospitality."

Why U. S. Government Wants Passenger Cars

To be Used by Officers in Quartermaster's Corps and for Messenger Service in Camps

WASHINGTON, June 9—Inquiry at the War Department as to the possible use for passenger cars being bought by the Government in large numbers, elicited the information that these machines will be needed for the use of officers of the Quartermasters Corps, for messenger service, and in various other ways, especially at the cantonments to be built for the training of the conscripted army. These cantonments will take care of 30,000 men each, and this means a great number of officers for instruction purposes. The building of several hundred miles of roads in and around these cantonments will be another feature of interest to which the War Department is now giving its attention. The roads required will have to be of the most approved type, and experts of the Government will be employed in their construction.

Demonstrate Smith Form-a-Tractor

SAVANNAH, June 9—An important meeting of tractor and truckmen was held last week at the Hotel Savannah. Representatives of the Smith Form-a-Truck and the Smith Form-a-Tractor gathered from several points in the South to attend a demonstration of the tractor. The demonstration was under the immediate care of Younglove and Sipple, who represent in twelve counties the distribution of this appliance. The southern campaign of education so far has included demonstrations at Knoxville and Memphis, Tenn.; Atlanta and Waynesboro, Ga., and Columbia, S. C. These will be continued until such time as all important agricultural districts have been shown the efficiency of the tractor. The meeting was presided over by L. A. Woodward, manager of the southern territory, with headquarters at Atlanta. Among those present were: T. B. Moon, manager sales promotion and publicity, of Chicago; E. S. Wilcox, of the Commerce Trust Company, Chicago; J. C. Kirkpatrick, factory representative; Percy Shultz, who is in active charge of the tractor demonstration, and C. E. Stewart, traveling inspector. Wilcox is preparing to extend financing to southern agricultural interests and has been making a study of conditions in order to meet the requirements.

Los Angeles Dealers Organize

LOS ANGELES, June 9—Closer cooperation between various branches of the motor car business is aimed at through the organization at a meeting held last week of the Los Angeles Automobile Trades Association. Harold L. Arnold, president of the Motor Car Dealers Association, Robert Martland of

Oakland and J. H. Banta, an accessory dealer, were among the speakers. Ralph C. Hamlin was named temporary chairman and D. P. Oatman, temporary secretary. A committee was appointed to name permanent officers. Martland is secretary of the recently organized California State Automobile Trades Association and he explained what is being accomplished through that body and what it hopes to do. More than 100 tradesmen attended the meeting last night and apparently sufficient impetus was given the proposition to send it through to a successful culmination.

Milwaukee Maps Its Tour

MILWAUKEE, June 9—A tentative route for the second annual Booster Tour to be conducted by the Milwaukee Automobile Dealers, Inc., in August, to stimulate interest in the Wisconsin State Fair, at which the association again will have a motor exposition rivalling the annual Auditorium shows, has been selected and the pathfinder will get away June 17 to mark the roads. The route calls for a 6-day tour, as follows: Milwaukee to Janesville; to Kilbourn and the Dells; to Waupaca; to Menasha, and thence to Milwaukee. It covers about 950 miles and includes the choicest parts of the territory of members of the association, most of whom are large distributors in the Wisconsin and Upper Michigan territory. Leslie D. Frint is chairman of the tour committee.

Chevrolet Holds Executive Meeting

FLINT, MICH., June 9—The Chevrolet Motor Co. was host, last night, to 150 executives of the Chevrolet and Mason companies, at a banquet held in this city. J. H. Newmark, advertising manager, presided as toastmaster and the principal discussions were made by A. B. C. Hardy, vice-president, and A. W. Sills, general sales manager, who discussed early motor car days and told of the growth of the Chevrolet company. Sills stated that there are more than 4000 Chevrolet dealers on this globe. Other speakers included President Begole and treasurer W. S. Ballenger; W. W. Willett, general manager of the Chevrolet Motor Co. of Bay City, Michigan; A. C. Mason, president of the Mason Motor Car Co. and H. L. Innes, factory manager of the Chevrolet company.

Gross Heads Saxon Agency

NEW YORK, June 11—C. H. Larson, head of the Cutting-Larson Co., Oldsmobile distributor, has severed his connection with the Saxon Motor Sales Co. and his interests have been purchased by F. A. Gross, who has been elected president. Gross has been closely connected with the Olds Motor Works, Lansing, for the past eight years, and has been branch manager in Buffalo, Boston and more recently in Chicago. General manager of the Saxon company George Morrow has temporarily relinquished his duties and is traveling in the West. Both he and J. V. Hall, however, retain their interests in the Saxon company.

What Arrangement of Wheels Is Best?

(Continued from page 29)

there is room for all sorts of compromise. There are machines with a chain-tread drive, and wheels for steering which support a good deal of the weight. There are the so-called drum machines, with essentially one hugely wide wheel; there might conceivably be six or eight-wheel machines. Because these things have not proved good for road work is no reason against their adaptability for the farm.

The matter is complicated still more because the tractor has to be a road as well as a field machine. In Europe, where the majority of roads are very smooth macadam or bituminous, a tractor cannot be run on them, unless it has smooth wheels, without doing terrible damage. It is illegal in England to drive on a road with strakes or studs in the tires, and it soon will be in America, without doubt, at least on improved highways. Thus the design of the average tractor will have to be some sort of compromise between the road ideal and the field ideal. Meanwhile, there is opportunity for ingenuity in devising some method for rapidly converting a wheel from rough to smooth, and vice versa. Two schemes suggest themselves which have not yet been worked out so far as the writer is aware. One is to attach the studs or tread bars to a loose rim which could be slipped over the smooth rim and held by a half dozen large bolts; the other to provide a smooth rim which would go right over the wheel with its field tread, and be held similarly by a few bolts. The latter would probably be the better scheme, because the tractor would not have to carry the field-service rims while on the road, as separate parts; and the larger diameter, which equals an increase in gear, would be an advantage on the road more than otherwise.

European Fields Small

The writer has mentioned this idea to several tractor engineers, and some seemed rather amused at the thought of any such "complication." The particular idea may be worthless, but for export, at least, the underlying principle is really of very great importance. Remember that in Europe the fields are small, and, to get from one to another, passage over the roads is necessary. This means that if a tractor works in three fields in a day, as it may easily be required to do, the tread bars and studs will have to be put on and taken off three times, the time occupied being just so much dead waste. The complication of detachable rims, or some corresponding device which could be put on or removed in a matter of minutes, could easily save a couple of hours in a day, and think what two hours means in terms of work the tractor could be doing.

However, this is a digression. The main idea which it is desired to impress is that the mechanical simplicity and efficiency of two-wheel drive for road vehicles, while it has the same advantages for a tractor, has corresponding dis-

advantages not apparent on the road. The army wants a certain number of four-wheel-drive trucks because they alone will do certain work; it wants some caterpillars, also; it even has limited use for wheeled tractors, although it wants infinitely more two-wheel, rear-drive trucks than anything else.

To give an instance of how the unexpected may occur, it was recently stated in a British paper that it had been found most economical to use a small tractor put on plowing in hilly country after the fashion of the old steam plow. The tractor was fitted with a winding drum and run across the field, leaving the plow behind at the end of a wire rope. Then the

What to Do When Prospects Open the Door

(Continued from page 17)

pose. He is a stranger in a strange place. He is on foreign soil. He really has no business in your salesroom unless he has business there, so, when you greet him pleasantly and then hesitate, it makes it psychologically necessary for him to make the next move.

"In the big majority of cases he'll say the right thing. If he's thinking of buying a car he'll say so. If he doesn't want to buy, but wants to see someone he'll say so. Whatever he wants he'll tell right then and there. If he doesn't say anything after a reasonably long wait you might ask him whom he wished to see. Or, if he glanced at one of the cars and looked like a buyer you might invite him over to look at it and begin your selling story. But such a situation is hardly worth while considering because it will seldom arise. The man will tell you what he wants. Then it's up to you to take care of his needs as courteously as you can.

"Whatever you do, don't be snappy or too brisk in your 'Good morning.' Don't let your business enthusiasm get into your system to such an extent that you can't be a gentleman. If you rush at a man and snap your greeting at him it repels him. And don't go up to him and ask such foolish questions as: 'Did you wish to see some one?' If he didn't want to see someone he wouldn't have come in.

"Don't say: 'Are you interested in cars?' The whole world is interested in cars and wants to have one. The principal trouble is the lack of price. Don't say: 'What can I do for you?' That's too abrupt. Perhaps you can't do anything for the man; in that case you have to go away back and start over again."

"And don't forget this, boys," supplemented Reilly, who had listened and watched the salesmen, "your approach is HALF your sale. By an intensive study of these few seconds of the sale you can put money into your own pockets in a simple, easy way."

winding drum was used to haul the plow, the tractor run back again to the other end and the plow hauled across once more. Apparently the reason for this system being used was the amount of power absorbed by the tractor itself on the upgrade. It is not suggested that such a system is likely to be anything but a makeshift, but it is possible, if not probable, that something of the sort may be best for small fields on steep hillsides, and some of the richest soil in Europe is found in places where the configuration of the land compels the fields to be small.

The conditions in Europe are very important now because Europe is looking to America to supply the large quantity of tractors required during the next few years. A tractor built for efficient work in Iowa or Illinois will have but a limited application in England and in very large tracts in France. If American manufacturers study foreign conditions, and devise machines to suit them, they have a much better chance of holding the tractor trade in their own hands after a few years of peace. Now is the time to follow up closely the machines being shipped abroad, for there will never again be such an opportunity for watching them work under varying conditions, varying soils, varying desires on the farmer's part, preparation for every conceivable kind of a crop.

That Europe will demand the perfection of a smaller machine than America can use most expeditiously is more than probable. Experience in the U. S. and Canada will be of greatest value in developing the four-plow and larger tractors, but Europe will be the place to develop the three and two-plow outfits.

Greatest Pull With Least Weight

This brings up another question of detail concerning which we really know very little indeed, namely, how to get the greatest pull with the least weight. The studs, tread bars, or strakes, as they are variously called, fitted to the rims of driving wheels, must necessarily vary according to the nature of the soil. To get the most economical expenditure of power we need the minimum roughness on the wheel which will give the grip. At present, the gravest difficulty is to get enough grip as, for example, on a grade where the ground is covered with rotting vegetable or animal matter which will form a lubricating compound when squashed. Is it not possible that there may be room for a device somewhat akin to the feathering paddle wheel used on boats? The pedrail has been largely set aside with the coming of the caterpillar, but this is no reason why it should not have its sphere; do not let it be forgotten.

Of course, the present is not the time to disturb production for the sake of experiment, but in the effort to turn out as many as possible of the best tractors we have there is a danger that we may lose sight of the fact that the present huge demand is due to the abnormal state of the world's food supply. War has made the tractor industry increase ten times as fast as it would have done in peace time.

Must Have Prosperity for Financing the War

Charles M. Schwab Tells Salesman- ship Congress Improper Economy Must Not Jeopardize Industry

DETROIT, June 11—"The war cannot be financed unless we have prosperous times," said Charles M. Schwab, president of the Bethlehem Steel Co., in the opening address to-day of the Second World's Salesmanship Congress.

He made a plea for the "aristocracy of industry" and deprecated any agitation toward economy which would jeopardize industry. Times must be kept good; in fact, with the big war expenditures to be made here, they cannot help but be good, he said.

"And," he added, "it is not the rich men who must finance the war. It is the workingman and the middle class man. This morning I had a telegram from the Bethlehem Steel plant that more than five million dollars has been subscribed to the Liberty Loan by the men in our plant. The officials were barred from this subscription; it was all done by the men, and 80 per cent of those who were suggested as possible subscribers have bought. By next week I would not be surprised if it were 95 or even 100 per cent.

"If there is one thought I wish I could give to you all, to be spread over the whole land, it is the seriousness of this situation. It is not a situation that we read about in the newspapers and which does not materialize. It is going to require the active part of everyone in the United States.

"The war will not be decided by any one great military gentleman. Look back through the history of the war and see how many have appeared thus far. Kitchener told me it would be not a war of men, but of machines and agriculture and that the nation that could produce the most machinery and feed its soldiers the best would be the nation that would win the war.

"I have at home an autographed letter from Kitchener in which he said that the organization that produced for Europe one million rounds of ammunition a month contributed more to the Allied cause than any other single factor. And this organization we have placed at the disposal of the United States, reckoning not what our profits may be."

At this point the congress cheered wildly.

"The great leaders of industry, agriculture and home politics," he added, "are more important figures than the military men. So if, on account of age, you have been denied the privilege of going to the front you may stay at home and help win the war with the assurance that the glory in the future will be for all."

In other sections of the congress sessions it was suggested that the idea of economy is being misunderstood and should be supplanted by the idea of the elimination of waste.

The congress opened this morning in the Arcadia Auditorium. Departmental sessions were held during the afternoon with a general session this evening at the Auditorium where the remaining meetings of the congress will be held. The last session Thursday evening will be devoted to elections and Congress business.

Secretary Manager D. M. Barret reported that the Congress, which was started a year ago, now embraces 16,000 members in 45 clubs; by next year he hopes the membership will be 100,000 in more than 100 clubs.

St. Louis won the club cup. It has 3529 members and sent 151 delegates. It wants the 1918 meeting, as does Minneapolis.

At the automobile sessions this afternoon an important thought was that dealers must intensify in selling and must plan business readjustments to meet the new conditions, but that there is every reason why business should continue to be good.

Harry Newman To Handle Rainier

CHICAGO, June 11—The newly organized Harry Newman-Stratton Co. has closed a contract with the Rainier Motor Corp. of New York, whereby it becomes distributor for the northern part of Illinois, Wisconsin and the eastern part of Indiana, for the Rainier worm-drive half ton truck.

To Control Headlamp Glare

NEW YORK, June 11—Governor Whitman has signed the Hewitt Bill which prescribes the manner in which headlamps must be controlled in New York State. Under its terms, light rays must not rise higher than 42 in. from the roadway at a distance of 75 ft. from the car. The lamps must also illuminate an object placed 10 ft. from each side of the front of the car.

Premier New York Dealer to Move

NEW YORK, June 11—The Kaufmann-Morris Co., Inc., Premier distributor, will on Sept. 1 occupy the building at the corner of Broadway and Fifty-seventh Street, now occupied by the Fiat Co. It will be used as a salesroom and service station and will give the Kaufmann-Morris Co. three floors and a Broadway front. The Fiat Co. will move to new quarters, though the location has not yet been definitely decided.

Morris Heads Jacksonville

JACKSONVILLE, FLA., June 11—T. C. Morris was elected president of the Jacksonville Garage and Accessory Dealers' Association last week. Other officers elected were: Vice-president, Guy Marvin, Marvin Auto Supply Co.; treasurer, W. A. Estaver, Estaver's Garage; secretary, R. R. Roulier, manager, Michelin Tire Co.; executive board, John E. Gilbert, Joseph H. Walsh and R. L. Atkinson.

Emerson Motors Will Not Be Reorganized

Receivership Vacated After 48 Hours Because of Solvency of Company— To Continue Manufacture

NEW YORK, June 12—The Emerson Motors Co., Kingston, N. Y., is not to be reorganized. The receivership in which the company was placed last week was terminated at the end of 48 hours, following an agreement between stockholders and creditors and because, according to Bainbridge Colby, attorney for the company, the company is at present solvent. President Theodore A. Campbell states that there is no truth in newspaper stories to the effect that the company is to be reorganized and its capital reduced from \$10,000,000 to its assets which are said to be about \$100,000. At present Campbell is at the plant and has commenced operation. There are at present about 90 cars assembled on the floors ready for shipment and these are being sent out to dealers. Campbell asserts that it is the purpose of the company to continue in operation; that the company has plenty of money; and that it will build cars as fast as possible and ship them.

Chalmers Takes Over Boston Agency

BOSTON, June 9—The Chalmers Motor Car Co., Detroit, has bought out the interests of O. L. Halsey of the Chalmers Motor Co. of New England, and the agency becomes a branch again. Halsey formerly sold Packards at St. Louis, but came here a year ago to take on the Chalmers. Frank Allen will continue as manager, the position he held under Halsey. The latter has not decided what he will do, but he may take on some other line. He is a brother-in-law of Alvan T. Fuller, head of the Packard agency here.

New Yorkers Control Boston Paige Agency

BOSTON, June 9—The Paige Detroit Co. of Boston was reorganized here this week, and another New Yorker has bought an interest in the company. He is A. D. Waring, who was treasurer, sales and service manager of the New York Paige Detroit Co. He still retains an interest in that company. Waring is president of the Paige Detroit Co. of Boston; Sherwood Hall, Jr., vice-president; Edward M. Dalley, also of New York, treasurer, and Walter B. Hennigan, assistant treasurer. The company is having a new building built at 530 Commonwealth Avenue, which will be ready in the fall.

Ohio Has 292,000 Cars

COLUMBUS, June 9—According to the report of Ohio Registrar of Automobiles McCurdy, up to June 8 there were 292,000 gasoline cars registered in Ohio. During the same period the number of electrics registered was 4400.

Engineers Will Hear About War Airplanes

Lieutenant de La Grange of French Aviation Corps to Address Wash- ington S. A. E. Meeting

NEW YORK CITY, June 11—Additional interest is given the Washington meeting of the Society of Automotive Engineers, Monday and Tuesday, June 25 and 26, by securing Lieutenant Amaury de La Grange, of the French Aviation Corps, to present a paper on war airplanes, their different kinds, and duties, for the afternoon of Tuesday, June 26. Lieut. de La Grange has been sent to this country by the French government to assist the United States in developing airplanes, etc.

Nothing is more important to-day than airplanes. For the war, airplanes are needed more than infantry or cavalry. If the United States could send 10,000 trained aviators with airplanes to the western front, it would be possible to drive the Germans out of the air, and this would be one great step in winning the war. With the present handicap in ocean ships, it would be possible to send airplane engines and aviators in quantities to be effective in France, whereas great numbers of infantry would be difficult to transport. Airplanes are needed to-day more than anything else. They are the eyes of the army. America is going to bend every effort in the next year on airplane production.

It is because of this unusual importance of the airplane that the paper of Lieutenant de La Grange will have a special significance to every S. A. E. member. Lieutenant de La Grange has agreed to talk frankly on the subject. He has been sent by his government to assist in this work, and he realizes that he will have his most potential audience on June 26.

Engine Company Moves and Changes Name

MUSKEGON, MICH., June 7—The Universal Valveless Fourcycle Engine Co., Grand Rapids, is moving to Muskegon, Mich., under the new name of Muskegon Engine Co. C. E. Johnson, Muskegon, is president, H. L. Shuh, Grand Rapids, secretary and treasurer and H. D. Hansen, Muskegon, is assistant secretary and treasurer. The company will build 1-ton and 2-ton trucks in addition to valveless engines. It is now manufacturing an experimental model in its temporary plant. The company will erect a large factory in the near future.

Hewitt Rubber Enlarges

BUFFALO, N. Y., June 9—The Hewitt Rubber Co. will increase its capital stock from \$500,000 to \$1,000,000 and J. H. Kelly and F. V. Springer, of the Republic Rubber Co., Youngstown, Ohio, will become associated with H. H. Hewitt in the

management and control of the Hewitt company. Plans are contemplated for the enlargement of the plant to a capacity of 5000 tires per day.

Harroun Producing in 2 Weeks

DETROIT, June 9—The Harroun Motors Corp. will be producing complete cars within 2 weeks. All of the machinery has been installed and materials have been storing up for several months, and the company is now ready to engage in steady output.

Wire Wheel Company Organized

KALAMAZOO, MICH., June 9—The Kalamazoo Wire Wheel Co. has been organized here with a capital of \$500,000. The company will manufacture wire wheels for motor cars and will erect a plant within 90 days, which it is expected will manufacture 400 sets of wheels per day and employ 300 men.

No Sunday Gasoline!

SAVANNAH, GA., June 9—Mayor J. S. Adams, of Sandersville, Ga., has ruled that hereafter there will be no sales of gasoline permitted in Sandersville on Sunday. All dealers have been notified to discontinue the sales and no violation of this law will be permitted. All who need gasoline for Sunday rides will have to obtain it during the week or let their cars remain idle. The state law plainly states that the usual lines of business must cease on Sunday and the city authorities have the backing of that law in the enforcement of the prohibition of gasoline sales.

Republic Factory in California

ALMA, MICH., June 9—The Republic Motor Truck Co. will shortly erect an assembly plant at a cost of \$175,000 in some large center in California. The plant will give employment to 300 men. The Republic Motor Truck Co. now turning out 100 trucks per day is planning to double its capacity within the next few months and to manufacture about 50,000 trucks of two models, one similar to the present large model and the other with a three-quarters ton capacity in 1918.

First Oneida Truck Delivered

GREEN BAY, WIS., June 9—The first Oneida truck to be manufactured by the Oneida Motor Truck Co., Green Bay, Wis., incorporated recently with a capital stock of \$300,000, left the shops on Wednesday, June 6, and marked the beginning of the initial output of commercial cars by the new company. The first truck is a 1½-ton equipped with a Continental motor; Hele-Shaw clutch; Cotta transmission; Spicer universals; Timken front and rear axles, and complete Bosch ignition, lighting and starting systems. Worm-drive is employed.

Kansas City Dealers Optimistic of Future

War and Bad Weather Have Not Had as Bad an Effect as Expected— Trucks Selling Fast

KANSAS CITY, June 9—Conditions in the motor car trade of the Kansas City territory may be briefly summarized as follows:

1. Abnormally wet weather has hampered automobile traffic and restricted sales.

2. Variations ranging from small gains to 40 per cent declines from business of May, 1916, are considered to make a remarkably good showing for the district for the past month, in view of war and weather, and more serious declines in other sections of the country.

3. Increases in sales, in both cities and country, for May over April, indicate recuperation from the first shock of the war; the last week of May was the best of the month.

4. Sales of trucks increasing in faster ratio than passenger car sales indicate pressure of increasing business on merchants and producers, and commercial prosperity.

5. The large number of cars in dealers' hands June 1, exceeding even last year, indicates confidence of dealers in the future trade.

6. Country bankers say their banks are in better condition June 1 than for more than a year, and well able to handle the Liberty Loan subscriptions as well as local business.

7. The Federal Reserve Bank of the tenth district (Kansas City) ended its June 2 report with the following statement:

"There has been no discernible abatement in the volume of general business, as indicated by bank clearings and other business barometers, and the attitude of commercial interests is by no means one of apprehension. Government purchases in various directions are adding materially to the normal consumption. As soon as the Government's plans are fully outlined, any uncertainty which now exists will give way to the generous co-operative efforts of the business interests in all lines."

Wolcott Heads Packard Electric

WARREN, O., June 11—N. A. Wolcott was elected president of the Packard Electric Co. at a recent meeting of directors, other officers elected being: Vice-president, Charles Fillius; secretary, R. E. Gorton; treasurer, N. A. Wolcott. The company has purchased a group life insurance contract which insures the life of every employee for the amount of one year's salary. The insurance increases with salary increases, and provides for an increase of \$100 for each year of service, with a maximum increase of \$500.

Franklin Nearly Doubles Shipments

SYRACUSE, June 11—Shipments of cars made by the Franklin Automobile Co. during the month of May showed an increase over the month of April of 86 per cent. At the same time unfilled orders amounted to 2200 cars, which is equivalent to 9 weeks' production.

Milwaukee Nash Men Hold Big Convention

Over 200 Dealers Gather for "Tune-up" Sales Meeting and Banquet—Those Who Attended

MILWAUKEE, June 9—More than 200 dealers, members of the Wisconsin and upper Michigan sales organization of the Nash Sales Co., 455-459 Broadway, Milwaukee, distributor of Jeffery passenger and commercial cars, were the guests of the company at a sales convention and banquet in Milwaukee on June 6. Charles W. Nash, president and general manager of the Nash Motors Co., Kenosha, Wis., and other leading officials of the factory organization, were present. Rudolph Hokanson, general manager of the Nash Sales Co., directed the convention and acted as toastmaster at the banquet in the Hotel Wisconsin.

Other speakers at the banquet, which was called a "Tune-up Meeting," included W. H. Alford, vice-president; C. B. Voorhis, general sales manager; N. E. Wahlberg, chief engineer, and Harry Hart, general truck sales manager of the Nash Motors Co.; George P. Miller, president of the Nash Sales Co., and Alfred Reeke, head of the Alfred Reeke Co., Milwaukee, Jeffery Quad distributor in Wisconsin and upper Michigan, and Jeffery passenger car dealer in the Milwaukee territory.

On the morning following the banquet and convention, the dealers embarked on special cars and made an inspection of the Nash factories. Among the dealers present were:

Ernie Hansen, Houghton, Mich.; P. A. Thorin, Iron River, Mich.; Ed. Zweibel, Burlington, Wis.; A. E. Austin, Madison, O. S. Jacobson, Madison; J. A. Snively, Green Bay; Gust Turtletot, La Crosse; Jay Hall, Manitowoc; James Davies, Waukesha; Fred Faeser, Monroe; J. O'Connell, Janesville; O. G. Kinney, Eau Claire; P. J. Duren, Cazenovia; Fred C. Ragan, Grand Rapids, Wis.; Oscar A. Koch, Beechwood; John Greisinger, Park Falls; S. W. Palmer, Portage; Gustav Helming, Sheboygan; O. A. Holmes, Kendall; August Maso, Fennimore; Edgar Karstedt, Sheboygan; Lawrence Syse, Blanchardville; A. E. Thornson, Beloit; A. F. Fuerst, New London; Frank Geler, Sauk City; A. J. Rohland, Iron River, Mich.; Thomas Bovin, L'Anse, Mich.; Mr. Smith, Calumet, Mich.; Frank Wright Appleton, F. G. Blum, Monticello; Jerome Terwilliger, Clinton; Ed. York, Portage; H. A. Helms, Marion; Hugo Lingelbach, Oconto; O. W. Brandes, Stevens Point; Otto E. Scherer, Palmyra; Charles B. Lewis, Palmyra; J. E. Harris, Prairie du Chien; Theodore Schluter, Reedsburg; Adam Delcher, Plymouth; R. M. Morrison, Sault Ste. Marie, Mich.; John Fortum, Berlin; J. White, Algoma; R. E. Kamm, Ashland; Mr. Nieman, Wausau; Mr. Heck, Antigo; J. C. Murray, Beloit; Erich Mueller, Princeton; N. Strausberg, Marshall; Sam Longdin, Fond du Lac; Joe J. Menne, Eden; Ed. Theuwachter, Malone; Nick Heuse, Marytown; C. W. Smith, Fort Atkinson; H. Whitmore, Watertown; Mr. Weber, Oconomowoc; C. M. Clark, Viroqua; E. Olson, Boscobel; F. Warva, Cashton; L. N. Allen, Baraboo; R. L. Johnson, Boaz; J. M.

Hild, Richland Center; E. Bey, Blue Mounds; J. Boehnen, Cross Plains; Harry Barr, Ironwood, Mich.; D. Harms, Platteville; N. H. Spang, Mineral Point; Charles G. Johnson, Menomonie; A. L. Jenkins, Dousman; Frank Hyne, Evansville; M. D. Robinson, Antigo; Mr. Kronschnabel, Arcadia; O. Philbrick, Baraboo; Mr. Loeck, West Bend; Myron R. Churchill, Marinette; Jesse Patterson, Lodi; Mr. Stark, Edgerton; John T. McCann, Appleton.

Thermoid Production Boosted

TRENTON, N. J., June 11—The Thermoid Rubber Co. has increased its yearly output of Thermoid brake lining by 30 per cent through the addition of new hydraulic press equipment. The output for 1916 totalled over 9,000,000 ft.

Another Ford Converter

DETROIT, June 11—The Royal Motors Corp. has been formed to manufacture and market a unit for converting the Ford car into a 1½-ton truck. J. C. Siemon is president, other officers being: Secretary-treasurer, George D. Gray; sales manager, L. J. Kaiser, former sales manager of the Detroit Chair Mfg. Co.

Napoleon To Move To Traverse City

TRAVERSE CITY, MICH., June 9—The Napoleon Motor Co., Napoleon, Ohio, will move its plant to this city in the near future. The company states that it has orders for 5000 passenger cars and 300 trucks.

Entirely New Bodies For Chalmers

DETROIT, June 11—An entirely new, exceptionally complete and attractive line of bodies has been provided by the Chalmers Motor Co. for the coming year. These include: Five and seven-passenger touring cars and standard speedster at \$1,350; touring sedan, \$1,850; three-passenger cabriolet, \$1,725; seven-passenger town car, \$2,925; town landaulet, \$3,025; seven-passenger limousine, \$2,925; limousine landaulet, \$3,025; four-passenger duplex, \$1,475.

La Vietes Takes New Offices

NEW YORK, June 4—George E. La Vietes, district sales manager for the Osgood lens, has taken possession of new offices at 1834 Broadway. He was formerly at 73 Warren Street.

More Room for Johns-Manville

PITTSBURGH, June 4—The H. W. Johns-Manville Co. has removed to larger quarters in the Westinghouse Building. Showrooms and offices have been enlarged.

Crude Oil Up 10 Cents in California

SAN FRANCISCO, June 9—The Standard Oil Co. of California has advanced all grades of crude oil 10 cents a barrel in the San Joaquin Valley, Ventura County, and Whittier, Fullerton and Santamaria fields, over prices announced on May 11.

Kerosene Unlikely For Use In Passenger Cars

Hastings Says a New Fuel Probably Will Be Developed—A Combination of Gasoline and Kerosene

CHICAGO, June 7—The fuel of the future will consist of all the crude oil distillates whose boiling points are below 600 deg. F., and will include the distillates known as kerosene and gasoline. This is the opinion of Don T. Hastings, chief engineer of Holley Bros. Co., as expressed in a paper read before the tenth annual convention of the National Gas Engine Assn., at the Hotel Sherman. The proposition was favorably discussed by many gas engineers, particularly President Bement.

Hastings said that while the Holley vaporizer has been developed for kerosene, it is not the belief that it will ever be used to any extent on passenger cars, but that for their use a new fuel will be developed which will contain more and more of the higher boiling point fractions which constitute kerosene. In other words, the car fuel of the near future will approach the straight cut fuel, that is, all of those fractions of petroleum below an end point of 600 deg. F. will be combined.

This statement was made in telling about the Holley vaporizers which are now used on Ford cars and Ford tractors in England, and which will shortly be on the market in this country both for Fords and other cars. The Holley vaporizing system as marketed for Fords in service includes a new cylinder head giving lower compression and better cooling.

George Briggs, of Wheeler & Schebler, Indianapolis, mentioned an instance in which government tests had shown as high efficiency per pound of kerosene as gasoline in an engine in which the temperature of the fuel was lowered just before ignition by the introduction of a shell of cold air just inside the cylinder wall.

Gasoline Exports 290,372,215 Gal.

NEW YORK, June 11—Gasoline exports in the nine months ending March, 1917, totaled 290,372,215 gal., an increase of 81,138,286, as compared with the period ending March, 1916, when the total was 209,233,929. Special precautions were taken to guard gasoline shipments from submarines.

Buick Dealers Expect Price Increase

FLINT, MICH., June 6—The Buick Motor Car Co. is informing dealers of a price increase which is to take place in the near future. This increase is due to the high cost of materials and labor. The amount of the increase is not yet definitely decided.

New York Car Owners Licensed After July 1

Governor Signs Kelly-Cromwell Bill Which Lets Secretary of State Revoke Driving Permits

NEW YORK, June 9—After July 1, all operators of motor vehicles in New York will be required to register and obtain from the Secretary of State certificates to permit them to drive. Governor Whitman has signed the Kelly-Cromwell Bill which makes this necessary.

Under this measure, which has been vigorously opposed by dealers, owners of cars are placed in a class distinct from those who operate cars for pay in that they will not be required to undergo an examination. They will receive licenses to drive upon payment of a \$1 fee.

The measure has been supported by the Police Department of New York and long has been urged by the Secretary of State. Heretofore, neither the police nor the Secretary of State have had power to revoke licenses for flagrant violations of the traffic law.

Under the terms of the new measure, those who operate cars while intoxicated will be guilty of a misdemeanor and those who injure pedestrians and fail to report the matter to the police or surrender themselves, will be guilty of a felony, punishable by a fine of \$500 or for imprisonment, not to exceed 2 years, or both. Convictions for these two offenses must be reported to the Secretary of State, and upon a recommendation of the trial court, he may suspend the license of the person convicted, and has the power to revoke the license. In the case of third offenders, the Secretary of State may revoke licenses and no new license can be issued for a period of 6 months after the date of conviction.

More Territory for Anthony

LOS ANGELES, June 9—One of the most important changes in dealer territory which the Packard Motor Car Co. has made in recent years, is one by which Earle C. Anthony, Inc., obtains practically the entire state of California. For the past 5 years Anthony's territory has included only southern California. Now there has been added most of central and northern California, including San Francisco, Oakland, Sacramento and Fresno.

Trade Good in El Paso

EL PASO, June 9—In spite of uncertain frame of mind on the part of many business men here regarding the immediate future of merchandising, due to the army law and the possible draft of a few thousand young men in this city, indications are that motor car trade is going steadily ahead. Three new companies are to open here within the next month. Among men from the Velie agency, Ed. and Thomas Duggan will start the Border Motor Sales Co. to handle the Case cars

and the Republic tires; the White-Hebard Co. has just moved into a new building handling the Detroit electric and the Lexington; R. C. Watres, at the head of the Tex-Mex Co., will handle the National, Scripps-Booth, Dixie and International trucks. Two other groups of men, one from Dallas, are planning to enter the field.

Ford Profit \$21 a Car

DETROIT, June 11—The Ford Motor Co. makes a profit of \$21 on every car it sells. This was brought out by Vice-President Klingensmith, testifying in the Dodge-Ford suit. He stated that it cost the Ford company \$260 to make a car; the price to the dealer is \$281. He said further that the Ford company aims to earn 12.01 per cent gross on \$250,000,000 business in 1917.

Jobbers' Association Admits 14

CHICAGO, June 8—Six manufacturers were elected to associate membership in the National Assn. of Automobile Accessory Jobbers and fourteen jobbers were elected to regular membership at the meeting of the board of directors held at the Elms Hotel, Excelsior Springs, Mo., May 30-June 1. Names of the manufacturers elected are:

Bailey Non-Stall Differential Co....Chicago
Champion Spark Plug Co. of Canada,
Windsor, Ont.
Colorado Tire & Leather Co.....Denver
Connecticut Tel. & Elec. Co...Meriden, Conn.
Standard Woven Fabric Co..Walpole, Mass.
Victor Mfg. & Gasket Co.....Chicago

Jobbers elected to regular membership are:

D. W. Alderman, Jr.....Florence, S. C.
Borderland Auto Supply Co.....El Paso
Dine-DeWees Co.....Canton, Ohio
Denver Auto Goods Co.....Denver
Foster Auto Supply Co.....Denver
C. W. Greene Co.....Tampa
Geller, Ward & Hasmer Hardware Co.,
St. Louis
Hilliard & Yokes.....Erie, Pa.
Johnson Tire Co.....Montgomery
Master Sales Co.....Omaha
Northwestern Auto Supply Co.,
Billings, Mont.
Price Auto Equipment Co.....Wichita
Saskatchewan Motor Co.....Regina, Sask.
Williams Hardware Co..Clarksburg, W. Va.

The next meeting will be held the last week in August or the first in September, at a place to be decided later.

New Columbus Packard Company

COLUMBUS, OHIO, June 9—A new company to deal in Packard cars and trucks under the style Packard-Columbus Motor Co. has been formed and succeeds the temporary dealership held by Harry B. Cann. R. H. Mitchell, formerly sales manager of the Penberthy Injector Co., is president and associated with him are, vice-president E. C. Brisley and secretary-treasurer, R. M. Mitchell, formerly connected with the Lackawanna Automobile Co., Scranton, Pa.

Accessory Store Chain To Cover Country

Company To Have Two Branches in Every State and Handle Only Nationally Advertised Goods

NEW YORK, June 9—The Motor Accessories Corp., incorporated in Delaware for \$2,000,000, plans to open two branches in every State in the Union to handle nationally advertised accessories for cars and trucks. The corporation will sign up one service station in each town, and there will be a branch in New York and one in Chicago, with sub-stations in each city. The first plants will be opened in Newark, N. J., with Philadelphia, Buffalo, Pittsburgh, Brooklyn, New York, Denver, Chicago and Detroit following.

The corporation will operate its own plant in Sandusky, manufacturing dry cells, grease guns, air pumps and carbureters. Some of the men behind the organization are: R. W. Thompson, of Thompson, Warren & Pelgram, attorneys, 52 Wall Street; Henry L. Redfield, 16 Court Street, Brooklyn, real estate; W. Morris Griscom, Philadelphia, and H. F. Vortkamp, formerly with the Mayer Carburetor Co. and the Chandler Radiator Co. The corporation has opened offices at 170 Broadway.

Pennsylvania Tire Men Abandon Picnic

JEANNETTE, PA., June 11—Employees of the Pennsylvania Rubber Co. have voted to abandon their annual picnic. This has been done so that the expense of the picnic might be saved and turned over to the Red Cross. Following this action of the employees, the Pennsylvania Rubber Co. sent its check for \$1,200 to the Jeannette Red Cross unit. The Pennsylvania company has recently taken up the work of having issued to its men and women employees life insurance policies, upon which it is paying the premium. To employees who have been with the company 1 year, policies for \$300 are given; 2 years or over, \$500; for each full year over 2 years, an increase of \$100 annually until the maximum of \$1,000 is reached.

Dealer Has Used Car Show

SEATTLE, June 9—Little & Kennedy, Tacoma, Wash., has conducted for the past week a special sale of used cars that resulted in the sale of twenty-five machines in less than a week. Sale was in the hands of E. S. Robinson, manager of the used car department, and each car on the floor was plainly marked with a price tag, from which there was no change allowed.

Scranton Dealers Organize

SCRANTON, PA., June 11—Dealers, garagemen and supplymen have formed the Scranton Motor Trades Association. Officers are to be elected at the next meeting.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

F. A. Gustafson, for eight years connected with the Vellie Motors Corp., has been appointed superintendent of the painting department of the Jones Motor Car Co., Wichita, Kan. R. D. Collins has become vice-president and a director of the company. He has been for a number of years connected with banking and lumber interests in the South.

W. H. Taylor of Chicago has been appointed resident manager of the Peoria branch of the U. S. Tire Co.

Leslie R. Acton, vice-president and treasurer of the Redden Motor Truck Co., has disposed of all of his interests and retired from the company.

Eddie Richenbacher has been appointed pilot of Major General John J. Pershing's private car for duty in France.

H. W. Alden, vice-president of the Timken-Detroit Axle Co., has been appointed major of the ordnance department.

Russell Munro, assistant advertising manager of the Ford Motor Co., resigned to join the army and goes to France as an ambulance driver.

A. E. Patterson, who has been operating for three years as a salesman at the Portland and Seattle branches of the Goodyear Tire & Rubber Co., has been appointed to manage the Goodyear branch at Tacoma, succeeding C. B. Reynolds, who goes to Sacramento.

H. L. Worble, formerly service engineer of the Covert Gear Co., has been appointed chief engineer and production manager of the A. J. Detlaiff Co., Detroit, which is opening a new clutch department where a disc type of clutch of new design for passenger cars, trucks and tractors will be manufactured.

F. H. Downes has resigned his position as manager of the Smith Form-A-Truck department of Ballou & Wright, Portland, to represent the Smith factory in placing agents for the Form-A-Truck along the Pacific Coast.

Ralph G. Kennedy has been made assistant manager of the Thornton-Fuller Co., Dodge dealer in Philadelphia.

A. W. Mickim, formerly advertising manager for the Liberty Motor Car Co., has joined the staff of the Carl M. Green Advertising agency.

Harry F. Bryan has become research engineer of the Harroun Motors Corp. He was formerly research engineer of the Master Carburetor Co.

J. Elmer Pratt, formerly general sales manager of the Pierce-Arrow Motor Car Co., has been elected president of the Higrade Motors Co., which has its executive headquarters in Grand Rapids, Mich., a temporary plant in Harbor Springs, Mich., and sales and advertising offices in Buffalo. The Higrade company will specialize in $\frac{3}{4}$ -ton trucks, building this type exclusively.

H. P. Morris, who was formerly with the sales organization of the G. T. Overholt Co., is now with Averman-Lynn Co., Inc., Pittsburgh.

Geo. Dreher, formerly manager for the Smith Form-a-Truck Sales Co., of Pittsburgh, has associated himself with the sales organization of the Hiland Automobile Co., Dodge dealer.

William B. Levey, Purchasing Agent of the Service Motor Supply Co., Chicago, has resigned. He is contemplating making a change.

E. H. Brandt has been appointed western sales manager for the Ajax Rubber Co. He is to be in charge of sales in the territory west of a line drawn along the eastern boundaries of Michigan, Indiana, Illinois, Missouri, Arkansas and Texas, with the exception of the states of Washington, Oregon, California and Nevada. Brandt's headquarters will continue to be in New York.

E. B. Turrill of the advertising department of the Saxon Motor Car Corp. has resigned and joined the American Red Cross ambulance corps. He has been with the Saxon company for three years.

Toi C. Bradford has joined the sales force of the Wilmington Automobile Co., Wilmington, Del.

John D. Carmody, formerly with the U. S. Rubber Co. of Chicago, is now covering Nebraska and North and South Dakota for the Champion Spark Plug Co., Toledo.

George W. Shane, formerly with the Chicago Chamber of Commerce, has joined the ranks of the Champion Spark Plug Co., Toledo.

George O. Simpson, for the past 7 years manager of the Philadelphia branch of the B. F. Goodrich Rubber Co., has been appointed manager of the Kansas City branch. He succeeds F. A. Oberheu.

Motor Securities Quotations

	June 9, 1917	Bid	Asked
*Ajax Rubber Co	68½	72	
*J. I. Case T. M. Co. pfd.	83	87	
Chalmers Motor Co. com.	9	13	
*Chandler Motor Car Co.	90	91½	
Chevrolet Motor Co.	99	101	
Fisher Body Corp. com.	34	36	
Fisher Body Corp. pfd.	87	89	
Fisk Rubber Co. com.	78	80	
Fisk Rubber Co. 1st pfd.	103	106	
Fisk Rubber Co. 2nd pfd.	92	95	
Firestone Tire & Rubber Co. com.	125	127	
Firestone Tire & Rubber Co. pfd.	106	107½	
*General Motors Co. com.	110	110¾	
*General Motors Co. pfd.	88	88¾	
*B. F. Goodrich Co. com.	53	53¾	
*B. F. Goodrich Co. pfd.	106¾	108	
Goodyear Tire & Rubber Co. com.	195	202	
Goodyear Tire & Rubber Co. pfd.	106	108	
Grant Motor Car Corp.	3½	5½	
Hupp Motor Car Corp. com.	3	4	
Hupp Motor Car Corp. pfd.	72	80	
International Motor Co. com.	5	10	
International Motor Co. 1st pfd.	35	50	
International Motor Co. 2nd pfd.	10	20	
*Kelly-Springfield Tire Co. com.	51	54	
*Kelly-Springfield Tire Co. 1st pfd.	88	93	
*Lee Rubber & Tire Corp.	18	18½	
*Maxwell Motor Co., Inc. com.	52	52½	
*Maxwell Motor Co., Inc. 1st pfd.	68¾	69	
*Maxwell Motor Co., Inc. 2nd pfd.	33	34	
Miller Rubber Co. com.	190	200	
Miller Rubber Co. pfd.	103	105	
Packard Motor Car Co. com.	151	151	
Packard Motor Car Co. pfd.	95	98	
Paige-Detroit Motor Car Co.	29	31	
Peerless Truck & Motor Corp.	16½	17½	
Portage Rubber Co. com.	152	158	
Portage Rubber Co. pfd.	..	..
Regal Motor Car Co. pfd.	..	22	
Reo Motor Car Co.	28½	29½	
*Saxon Motor Car Corp.	41½	43	
Springfield Body Corp. com.	52	57	
Springfield Body Corp. pfd.	110	117	
Standard Motor Construction Co.	12	13	
Standard Parts Co.	..	86¼	
*Stewart-Warner Speed. Corp.	74½	75½	
*Studebaker Corp. com.	83	83¾	
*Studebaker Corp. pfd.	101	105	
Swinehart Tire & Rubber Co.	65	70	
United Motors Corp.	28¼	28½	
*U. S. Rubber Co. com.	62½	63	
*U. S. Rubber Co. pfd.	106	108	
*White Motor Co.	48½	49	
*Willys-Overland Co. com.	29¾	29¾	
*Willys-Overland Co. pfd.	92½	94½	

*At close June 9, 1917. Listed N. Y. Stock Exchange.

†Par value \$10.

Post Office Will Run Its Own Truck Garage

New York Authorities Lease Building for 10 Years at \$60,000 a Year—Will Get Others

NEW YORK, June 11—The Post Office Department is to run its own garage hereafter. The United States Government has agreed to pay \$600,000 rent during the next 10 years for a garage to house 250 of its mail trucks. The building will be located at 310-328 West Thirty-eighth Street, and will run through to West Thirty-seventh Street. The building probably will cost \$300,000 and will have an available floor space of 67,750 sq. ft. Heretofore the post office has maintained its trucks in public garages, and this is the first step toward government ownership of such buildings in New York. It is planned to have government garages in other boroughs in the near future.

Morgan Potter Enters Automobile and Truck Building Fields

BEACON, N. Y., June 9—The Morgan Potter Mfg. Co. is changing its name to the Morgan Potter Motor Co. and will devote its plant to the manufacture of a four-cylinder, five-passenger touring car, a light truck and truck converters. Morgan Potter, president of the company during its 30 years' experience as a carriage accessory maker, continues at the head of the business.

All products of the company will bear the name Beacon.

Judd Improvises a Truck

BOSTON, June 9—John L. Judd, who has the New England agency for the Allen, Auburn and Smith-Form-A-Truck, has just secured the entire United States territory for a new combination 2½-ton truck to be made on Allen chassis and Smith-Form-A-Truck unit. The truck will sell for less than \$1,200.

L. H. Mesker has joined the sales department of the Cleveland Milling Machine Co., Cleveland. He was formerly sales manager for Kearney & Trechker, Milwaukee.

L. J. Myers has been appointed to take entire charge of sales for the Amazon Rubber Co., Akron, O.

C. W. Miller has been made general manager of the Michigan plant of the Steel Products Co., Cleveland.

Edward S. Babcox, advertising manager of the Firestone Tire & Rubber Co., Akron, has been elected vice-president of the Assn. of National Advertisers.

L. E. Murray has been appointed manager of the New York branch of the United Motors Service, Inc., opened June 11 at 239 West Fifty-sixth Street. R. A. Sturgeon has been appointed assistant manager. Murray was formerly with the Dayton Engineering Laboratories Co. and Sturgeon with the Remy Electric Co.

Boost in Tire Prices Does Not Materialize

**It Was Expected and May Come Yet
—Plenty of Rubber but Cotton
Is High—One Advance**

NEW YORK, June 11—Despite rumors to the effect that tire prices would quite generally be increased this week, such increases have not materialized. The rubber situation is no more acute than during the past few months, and though the supply on hand is sufficient for immediate demands, stocks at the factories are not as great as tire manufacturers would like. Shipping conditions have caused some apprehension, though it is pointed out by the Rubber Association of America that no rubber ships have been sunk as yet. Plenty of rubber is coming in. The cotton situation is somewhat easier, following the receipt of a shipment of Egyptian cotton this week. Prices are high, however, and American cotton, too, has touched new high levels this week.

The Lee Tire & Rubber Co., Conshohocken, is the only one which has made a recent change. This company adopted a new list June 1, as follows:

LEE TIRE & RUBBER CO.

Size	Old Price		New Price	
	Plain Tread	Red Tube	Plain Tread	Red Tube
33 x 4....	27.50	6.20	31.30	7.20
34 x 4....	28.50	6.45	32.30	7.40
35 x 4½..	39.70	8.20	38.25	8.95
36 x 4....	30.35	6.70	34.40	7.80
36 x 4½..	40.20	8.45	39.50	9.20
37 x 5....	47.60	9.65	48.10	10.75

Pullman to Continue

YORK, PA., June 9—The Pullman Motor Car Corp. will continue manufacturing Pullman cars under a contract between the receivers, W. A. Keyworth, C. L. Hoff and Henry Schmidt, and the National Products Co., Newark, N. J. A petition for authority to sell the plant and assets of the Pullman company to the National Products Co. had been presented by the receivers to Judge Whitmer, of the United States District Court, Sunbury, Pa. Purchase of the Pullman company will be approved by the court on June 15 providing no objections are entered by creditors in the meantime. It is stated that the entire organization of the receivers of the Pullman company will be maintained by the National Products Co.

Ford Truck in July

DETROIT, June 9—Ford trucks will be in production and will be turned out at the rate of 25 a day in July. As stated in Motor World for April 18, this truck will be provided with an overhead worm drive axle operating in connection with the powerplant now employed for the Ford passenger car and through a planetary gearset. There has been a tremendous demand on the Ford company

for this truck by dealers who appreciate the wide range of purposes which it may fill. Final details are rapidly being cleared up at the Ford factory so that production can be started at the earliest possible minute.

Norwood Heads Republic Tire

YOUNGSTOWN, OHIO, June 9—Guy E. Norwood has been elected president of the Republic Rubber Co. Thomas L. Robinson, who retires as president, will continue as chairman of the Board of Directors. Norwood was formerly secretary of the B. F. Goodrich Co.

Heaslet Out of Studebaker

SOUTH BEND, June 9—James G. Heaslet, vice-president in charge of engineering for the Studebaker Corp., has retired, however he will continue as a member of the Board of Directors and has been retained in the advisory capacity of consulting engineer. His place as vice-president has been taken by M. F. Wollering, formerly production manager. The change becomes effective immediately. Wollering, who has been associated with the Studebaker Corp. for many years, will be in charge of manufacturing at the Studebaker plants in Detroit, South Bend and Walkerville.

Clifton Re-Elected N. A. C. C. President

NEW YORK, June 8—More than ninety automobile manufacturers were represented at a record meeting of the members of the National Automobile Chamber of Commerce held yesterday, when Charles Clifton, head of the Pierce-Arrow Motor Car Co., was re-elected president; Wilfred C. Leland, vice-president of the Cadillac Motor Car Co., was elected vice-president, and Hugh Chalmers, Windsor T. White and Herbert H. Rice as division vice-presidents; R. D. Chapin, president of the Hudson Motor Car Co., was elected secretary; George Pope, treasurer, and Alfred Reeves, general manager.

John F. Dodge, president of Dodge Bros., was elected to the directorate of the Chamber, the other directors being Hugh Chalmers, R. D. Chapin, C. W. Churchill, Charles Clifton, J. Walter Drake, C. C. Hanch, W. C. Leland, Alvan Macauley, W. E. Metzger, R. E. Olds, Carl H. Felton, H. H. Rice, W. T. White and J. N. Willys.

Members of the chamber voted \$30,000 out of the treasury for Liberty Loan bonds and arranged to carry bonds for employees. A special committee was directed to consult with automobile and motorcycle manufacturers regarding construction of cars and motorcycles so that muffler cutouts cannot be used except with a screw plug or other device that can be handled only in a shop. The export committee, of which H. W. Ford, president of the Saxon Motor Car Co., is chairman, delivered a report on the comprehensive plans of the committee for developing sales of U. S. A. automobile products in the export field. The Liberty Motor Car Co., Detroit, was elected a member of the organization.

Ads for Whole Trade Started in Syracuse

**Car Dealers, Accessory Dealers and
Manufacturers Write a Message
for the People of the City**

SYRACUSE, June 9 — Automobile manufacturers and retailers individually have advertised within the past few weeks in many ways to boost business in general and more in particular the automobile business. But one of the first efforts in the industry to come from a group of dealers, manufacturers and accessory houses is the recent advertising in the daily newspapers of Syracuse, which appeared over the signature of "Allied Automobile Interests of Syracuse." This advertising had two main purposes. First, to show the people of Syracuse and vicinity the importance of the automobile business to that community, and second, to show the importance of the automobile in the conduct of business to-day. A careful investigation was made of the industry in Syracuse, and it was found that 34 per cent of the people in that city receive their support directly from the automobile business.

There are in this city of 158,000 twelve big factories devoted exclusively to the automobile industry. There are that many more, such as steel mills, that devote a large part of their time to products consumed by the automobile factories not only in Syracuse but elsewhere. And added to this, there are over fifty retail and jobbing establishments which employ hundreds of people, for Syracuse is a big distributing center for central New York.

The advertising appeared in big two-page spreads in two Syracuse daily papers.

Driggs-Seabury Changes Name

SHARON, June 9—The Driggs-Seabury Ordnance Co. has acquired all the property and assets of the Savage Arms Co., Utica, N. Y., and has changed its title to Savage Arms Corp. Though the Driggs-Seabury Ordnance Co. which long has held a prominent place in the motor car industry thus passes out of existence, it will not by any means cease to be a prominent factor in the industry. The company will continue to furnish drop forgings, frames, axles, transmissions, and other parts, and is laying plans for large extensions to care for increased business.

Ajax Salesmen Gather

KANSAS CITY, June 11—A convention of salesmen and distributors of the Ajax Tire & Rubber Co. was held here last week. Service and merchandising plans were discussed. The gathering was held in the establishment of the Bayha Tire & Rubber Co., Ajax distributor, and the following were present: Messrs. Dittman, Tower, Hamilton, Becton, E. S. Benson, supervisor for State of Kansas; W. L. Bayha, E. H. Brandt, Brady, Severcool, Miller and McLaughlin.

And Now They're After Price of Gas in Texas

Authorities Delve Into the Subject and the Gasoline Men Say "Supply and Demand"

DALLAS, TEX., June 9—Attorney General B. F. Looney and one of his assistants, W. S. Keeling, are in Dallas investigating the high price of gasoline. Gas in this city is selling for 23 cents per gallon, while in some places it is being sold for 19 cents. The officials refuse to discuss the situation.

An investigation that is believed to be similar to the one that is being conducted here was made last week by Oklahoma authorities. This hearing was held in some of the oil towns of Oklahoma. Attorneys suggested it be transferred to Texas.

"We have nothing to conceal and have entered into no combination of price fixing," the head of one of the largest oil companies in Dallas said in commenting on the investigation. "We have no fear of the investigation, as the price of gasoline is controlled by supply and demand. I gave all the information asked for to the Oklahoma officials a few days ago, when they conducted their hearing here, and am willing to give the Texas officials all the information they desire. There may be days when gasoline is higher in Dallas than it is in St. Louis, but this is due to the supply on hand."

Fuller Makes Big Increase

KALAMAZOO, June 9—Production records of Fuller & Sons Mfg. Co., transmission makers, show during the first 5 months this year two and one-half times the output of the same period 1916. The new plants now being erected, which will be ready for occupancy along in the summer, will no doubt enable the company to make a very much larger increase in production for the corresponding period of last year.

Six Buildings for Kelly-Springfield

CUMBERLAND, MD., June 8—The Kelly-Springfield Tire Co. has completed the preliminary plans for the buildings that will be erected here. Instead of one large factory, as was believed, there will be a group of at least six buildings. Instead of the first expenditure of \$1,500,000, the company will spend \$5,000,000. The main factory will be over 600 ft. long and more than 400 ft. in width and will be from two to four stories in height.

Denver Boosts Bonds

DENVER, June 8—A special committee to stimulate the buying of Liberty Bonds by motor tradesmen and their employees has been appointed by the Automobile Trades Association of Colorado. The committee is instructed to use its influence also toward arousing fervent support for other steps taken by the Federal Government to gain rapid and thorough

preparedness organization along military and industrial lines.

Fresno Dealers Banquet

FRESNO, CAL., June 11—The annual banquet of the Automobile Dealers Association was held at the Hotel Fresno May 28. More than 100 attended. Ted Shelton, Frank Hood and N. R. Cooper, brother of Earl Cooper the race driver, had charge of the program. Frank C. Riggs, vice-president and general manager of the Pacific Coast Willys-Overland Co., spoke on the used car problem. C. H. Cobb, president of the association, acted as toastmaster.

Truck Business Booming in Twin Cities

MINNEAPOLIS, June 11—War is accelerating the truck business in the Twin Cities. The E. G. Staude Truck Mfg. Co. has just completed a rush order amounting to \$85,000, sent by express to be delivered in London. All the 120 employees turned in and in 29 hours' continuous work had packed 500 Mak-A-Tractors, on which the express charges to the Atlantic seaboard were more than \$9,000. A steamship was held at port for the order.

Since Jan. 1 more than \$3,000,000 worth of tractors have been sent out for the Allied forces, or 1000 machines. The Emerson-Brantingham Co. shipped 300 to France, Russia and England, and has contracts for as many more. The Gray Tractor Co. has shipped 150 tractors and orders still are unfilled. The Bull Tractor Co. has sent out 250 machines and is making continuous shipments to England.

The trend of the motor car trade toward incorporating tractor lines is indicated in the decision of the Brice Auto Co., which distributes Grant cars, to take on for Minnesota and western Wisconsin the Allis-Chalmers 10-18 hp. farm tractor.

Another Plant for LeRoi

MILWAUKEE, June 11—The LeRoi Co. manufacturer of 4 and 6-cylinder engines, has broken ground for a one-story machine-shop addition to its plant. The building will be of reinforced concrete, brick and steel, 80 x 175, with sawtooth roof. The LeRoi Co. several months ago took over the motor business and plant of the Milwaukee Machine Tool Co., and is capitalized at \$350,000.

Service Station for Rolls-Royce

NEW YORK, June 11—The Rolls-Royce Co., Ltd., London, has purchased land in Long Island City at the northeast corner of Harris Avenue and Sunswick Street. A four-story garage and service station will be erected.

How to Solve YOUR Used Car Problem

Pages 9, 10, 11 and 12

Dealer Associations Favor National Body

All Those Heard From Think So Well of It Organization May Be Perfected Soon

MILWAUKEE, June 11—All the dealer associations thus far heard from have expressed themselves as strongly in favor of the proposed National Automobile Dealers' Association. It is expected that the general organization meeting, scheduled for Chicago, can be held earlier than had been anticipated, so favorable is the response.

The organizing work is being carried on by the provisional committee, which was formed two weeks ago in Washington during the fight against the 5 per cent tax. George W. Browne, this city, Overland distributor in Wisconsin, is chairman of this committee, and is being assisted in the work by Bart J. Ruddle, secretary of the Milwaukee Automobile Dealers, Inc.

Absorber Company Bankrupt

GRAND RAPIDS, MICH., June 9—The National Shock Absorber Co. has filed a voluntary petition of bankruptcy with \$3,669.55 liabilities and \$9,905.05 assets, the latter representing the book value of stock and accounts.

Winther Truck in Winthrop

MILWAUKEE, WIS., June 11—It is reported that the Winther Motor Truck Co. of Kenosha, Wis., organized several months ago by M. P. Winther, formerly of the Thos. B. Jeffery and Nash Motors companies, has definitely decided to establish its motor truck works in Winthrop Harbor, Ill., a village on Lake Michigan, a few miles south of Kenosha and at the Wisconsin-Illinois line. It is stated that the original plan to erect a large plant in Kenosha was abandoned because of the scarcity and high cost of materials and labor, and leases made of suitable buildings at Winthrop Harbor, which now are being modernized and will afford sufficient floorspace for immediate needs.

More Room for Crow-Elkhart

INDIANAPOLIS, June 11—The Crow-Elkhart Motor Co., Elkhart, last week purchased a factory site of 26 acres adjoining the present plant. The purchase means that several extensions will be erected in the near future.

Firestone Making Big Addition

AKRON, OHIO, June 9—The Firestone Tire & Rubber Co. is erecting an addition to its plant at a cost of \$1,000,000 and will increase production from 20,000 tires to 30,000 tires per day, as soon as this addition is finished.

Specifications
of the
Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	B. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT 6-44 6-60	6-31x44 25.3 Remy 6-31x44 29.4 Remy		Remy Remy	Stumg Stumg	Remy Remy	DP 3 122 DD 3 122	3 122 32x4 3 122 34x4		SS SS		1295 1595	1295 1595	1295 1595		1920 2150		
ALLEN Classic	4-31x25 23.5 Weths		Weths	Stumg	Weths	C 3 112	32x4		SS		1985	985			1175	1195	
AMERICAN SIX A	6-3 25 21.6 G & D		G & D	Zenith	G & D	D 3 122	32x4		SS		1385						
ANDERSON S-40	6-31x44 25.4 Weths		Weths	Zenith	Weths	DP 3 120	32x4		SS		1395						
APPELSON 6-17	6-31x25 29.4 Remy		Remy	Radd	Bijur	DP 3 120	34x4		SS		11850	1790	1850				
6-17	6-31x25 33.8 Remy		Remy	Johnson	Bijur	DP 3 120	32x4		SS		18000	2000	2000				
AUBURN 6-30	6-31x25 23.4 Remy		Remy	Radd	Remy	DP 3 120	34x4		SS		1145	1145	1170				
6-44	6-31x25 29.4 Remy		Remy	Radd	Delco	DP 3 121	32x4		SS		11335	1835					
AUSTIN Hy-King	12-31x25 29.6 Delco		Delco	Stumg	Delco	D 6 143	34x4		SS		3750	3750	4000	4550	4950	5350	1785
BIDDLE D	4-31x44 22.5 Dixie		Dixie	Zenith	G & D	DP 4 122	32x4		QD		2300	2350	12775			3900	
BOUR-DAVIS 17	6-31x44 25.3 Remy		Remy	Stumg	G & D	DP 3 118	32x4		QD		16500					7700	
BREWSTER 4	4-31x25 25.6 Bosch		Bosch	Zenith	U. S. L.	C 3 125	34x4		SS		725	725					850
BRUNCOE B-34	4-31x25 16.3 Conn		Conn	Mayer	Splitdorf	C 3 105	30x4		QD		11045	1045					300x
6-38	6-31x25 28.8 Remy		Remy	Zenith	Apico	C 3 114	32x4		QD		1245	845					300x
6-38	4-31x25 18.9 Remy		Remy	Mayer	Apico	C 3 114	32x4		QD		660	675					
BUICK D-44-35	4-31x44 18.3 Delco		Delco	Marvel	Delco	C 3 106	31x4		C		1040	1070			11440	1535	
6-44-47	6-31x44 25.3 Delco		Delco	Marvel	Delco	C 3 115	34x4		SS								
CADILLAC E-40	6-31x44 27.3 Delco		Delco	Marvel	Delco	DD 3 124	34x4		SS		12940						
55	6-31x44 31.3 Delco		Delco	Orn	Delco	D 3 123	37x5		SS		11100						
CASE T-17	4-31x16 21.0 Conn		Conn	Radd	A-Lite	C 3 120	34x4		QD		1350	1350	1340	1725	1850	2025	
CHALMERS 6-30	6-31x44 25.4 Remy		Remy	Stumg	Weths	DP 3 117	32x4		SS		1595						
CHANDLER 17	6-31x25 29.4 Bosch		Bosch	Radd	G & D	D 3 123	34x4		SS		1595						
CHEVROLET 4-90	4-31x4 21.7 Conn		Conn	Zenith	A-Lite	C 3 102	30x4		C		535	550					625
FA-5	4-31x44 21.7 Remy		Remy	Zenith	A-Lite	C 3 108	32x4		SS		875	875					
D	6-31x44 36.45 Remy		Remy	Zenith	A-Lite	C 3 120	34x4		SS		1385	1385	11535				
COLE 6-60	6-31x44 39.2 Delco		Delco	Stumg	Delco	C 3 127	35x4		SS		11795						
CROW-ELKHART CE-32-35	4-31x25 19.6 Conn		Conn	Carter	Dynaco	D 3 114	32x4		SS		1695	845					985
DANIELS 8	6-31x25 33.8 Weths		Weths	Zenith	Weths	D 3 127	34x4		QDR		12800	2800	2800				
DAVIS H & I	6-31x44 25.3 Delco		Delco	Stumg	Delco	C 3 119	34x4				1295	1295	1295	1695	1795		
J	6-31x25 29.4 Delco		Delco	Stumg	Delco	C 3 124	34x4				1695	1695					
DETROITER 6-45	6-31x44 25.3 Conn		Conn	Ball	A-Lite	D 119	32x4		SS		11250	1250	11300	1535			1650
DISPATCH	4-31x25 22.5 Bosch		Bosch	Radd	U. S. L.	G 4 120	30x4		QD		1125						
DIXIE FLYER L3	4-31x25 16.9 Conn		Conn	Carter	Dynaco	C 3 113	32x4		SS		1395	895					
DOBLE	2-ey 15x4 double-setting steam engine. Boiler pressure 600-lb.																
DODGE BROTHERS 4-31x44 24	Delco		Delco	Stewart N.E.	D 3 114	32x4		SS			835	835			1395		1000
DORRIS 1-36	6-4 25 38.4 Bosch		Bosch	Stumg	Weths	D 3 123	30x4		SS						2475	2550	3675
DORRIS 9	4-31x25 16.9 Conn		Conn	Carter	Weths	C 3 105	30x4		QDC		1725	725					845

[illegible]

ABBREVIATIONS—"A.C." Allis-Chalmers, "L.N." Lees-Neville, "Tltan" Tillotson, "Atr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "B & M" Robbins & Myers. NOTE—37½x5½" means that the rear tires are 37½", and the front are smaller. Detachable top, 300x, means \$300 extra. Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "B & M" Robbins & Myers. NOTE—37½x5½" means that the rear tires are 37½", and the front are smaller. Detachable top, 300x, means \$300 extra.

War Purchases From Chicago

CHICAGO, June 8—All motor vehicle equipment for the army is to be purchased through the Chicago depot of the Quartermaster's Corps. Colonel A. D. Kniskern at the headquarters of the Central Department in Chicago is in charge of this work and the first bids as mentioned in Motor World 2 weeks ago are to be opened June 8, others June 10 and still others June 11. Sundry manufacturers of motor trucks have been requested to submit bids according to the army specifications, but it is understood from sources close to Quartermaster's headquarters that truck manufacturers should bid on their own specifications; truck manufacturers should specify the make of their units such as motor, gear-set, axle, etc., and, most important, should state definitely just how many vehicles they are in a position to deliver per year and per day and the quantity and date of earliest possible deliveries without jeopardizing their commercial trade. Classification of bids will take some time and the date of the ultimate awards is yet to be decided upon.

Muncie Strike Being Broken

INDIANAPOLIS, June 8—Labor conditions at Muncie, Ind., where 3000 machinists employed in car and parts factories walked out 3 weeks ago, are improving. The T. B. Warner Auto Parts Co. is operating on practically a full schedule, and so is the Warner Gear Co. Many workmen formerly employed by the Muncie Gear Works have refused to go to work, but their places are being filled slowly by workmen from other cities. The Interstate Automobile Co. reports that more men are returning to work

each week and that with the men being employed from other cities, the strike is being broken.

Ford at Benton Harbor?

BENTON HARBOR, MICH., June 11—Negotiations are now under way whereby Benton Harbor will secure a large assembly and distributing plant of the Ford Motor Co. Plans have been drawn up for the building, which will cover a large area, and will be made public as soon as negotiations are completed. Location of a plant at Benton Harbor will give the Ford company an excellent distributing point over Lake Michigan to western centers.

Gorey Securing Agencies for Standard Parts

NEW YORK, June 8—Joseph C. Gorey, who has handled replacement parts in this city for five years as Joseph C. Gorey & Co., is extending his business to become a distributor of standard manufactured parts. This week the company secured metropolitan distributing rights on the universals and clutches of the Hartford Auto Parts Co., Hartford, Conn. Rights also had previously been secured on the Mayer carbureter and Warner gears.

Read!

How to Make Money in
Used Cars

Pages 9, 10, 11 and 12

More Cars Needed in Texas

DALLAS, June 7—Opening of the summer season in Texas finds dealers clamoring for more cars. Reports from over the state to the wholesale Texas dealers at Dallas are that Texas will buy more cars this year than ever before, regardless of the war. These statements the automobile men declare are based on sales already made, prospective buyers and inquiries being made. Last year Texas people bought 83,830 automobiles, being fifth in the United States. It is estimated Texas will absorb more than 100,000 cars this year. The next two months will be among the busiest months of the year with automobile men.

Indicating that the great trouble is getting cars and not in selling them, fifteen of the most prominent retail and wholesale dealers in Texas were seen this week and they declared that Texas would consume more cars if they could get them for prompt delivery. Many firms are two and three months behind and in instances further behind in the delivery of these cars.

Mid-West Section S. A. E. Elects

CHICAGO, June 8—C. H. Whitney, sales engineer, Willard Storage Battery Co., was last week elected chairman of the Mid-West Section of the Society of Automotive Engineers. Whitney succeeds F. E. Place of the Buda Co., who automatically becomes vice-chairman. Darwin S. Hatch, editor Motor Age, was re-elected secretary, and George L. Lavery, western manager West Steel Castings Co., was elected treasurer, succeeding Charles W. Stiger, president of the Stromberg Motor Devices Co. As only one ticket was in the field, the elections were unanimous.

Coming—THE SHOW CALENDAR—Events

Shows

Montreal, Can.....	Used Car Show, Coliseum.....	June 20-27
	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Spokane, Wash.....	Interstate Fair.....	Sept. 2-9
Milwaukee, Wis.....	Third Annual Fall, State.....	Sept. 9-15
	Fair Park, West Allis.	
Peoria, Ill.	Peoria Exposition and International Farm Congress and Soils Exposition, tractor display and demonstrations.	Sept. 18-29
Dallas, Tex.....	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C....	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Detroit	World's Salesmanship Congress, second annual meeting.	June 10-14
Cincinnati, O.....	Race.....	June 23
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.....	Championship	July 4
Tacoma, Wash.....	Championship	July 4
Visalia, Cal.....	Road Race.....	July 4
Spokane.....	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich..	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.....	Hill Climb	July 14

Des Moines, Ia.....	Championship	July 14
Missoula, Mont.....	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.....	Intercity Reliability.....	July 17-19
Intercity Reliability...	American Auto. Assn.....	July 17-19
Anaconda, Mont.....	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.....	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.....	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.....	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J....	Track Race	Aug. 17
Elgin, Ill.....	Road Race	Aug. 18
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.....	Championship	Sept. 3
Red Bank, N. J.....	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.....	Hill Climb.....	Sept. 8
Providence, R. I.....	Championship	Sept. 15
Allentown, Pa.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
Uniontown, Pa.....	Speedway Races	Sept. 30
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.....	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.....	Race	Oct. 13
Richmond, Va.....	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 12

New York, June 20, 1917

Ten cents a copy
Two dollars a year



36,000
Hudson Super-Sixes

*Don't You Wish You Had
Sold Some of Them?*

Hudson dealers have sold \$54,000,000 worth of Super-Sixes since January 1, 1916.

Think what a profit this has meant to them. Think what your share would have been. Because of this tremendous volume of sales Hudson dealers are prosperous. They are the dominant dealers in their communities.

The Hudson is an easy car to sell. No other car in the world—though many trials have been made—has equaled what it has done. In the latest models, in beauty, finish and luxury, no one can mistake its place.

Hudson is always growing. New territories are constantly being created. Hudson demands automobile merchants with broad visions and real merchandising ability. If you are this kind we want to know you.

**HUDSON MOTOR CAR COMPANY**
DETROIT, MICHIGAN



*There is a Van Sicklen
Service Station in
practically every city
in which your make
of car is sold*

Van Sicklen

ELGIN SPEEDMETERS

The Standard of Accuracy
in the Scientific Measure-
ment of the Speed of
Automobiles—and the
Choice of 20 of America's
Foremost Car Manufacturers

*Specifications and
Prices on Request*

*The Van Sicklen Company — Elgin Illinois
Factory — Elgin National Watch Co. —*

STUDEBAKER Commercial Cars

IN the Saturday Evening Post for this week (June 23rd issue) appears another full page advertisement of Studebaker Commercial Cars.

This advertisement illustrates the Studebaker Panel Delivery Car.

It shows a car in actual service delivering goods.

The photograph was taken in Philadelphia—although the home offices of the manufacturer owning the car are in New York.

Merchants who trade with that manufacturer—and there are thousands and thousands of them all over the country—will read this Studebaker advertisement.

Other manufacturers will be interested because the car has the name of a world-renowned house on its side.

Many national concerns like the one whose name appears in the photograph use Studebaker Commercial Cars because the equipment can be transferred from one branch to another and be driven 'cross country and never be more than one town distant from Studebaker service.

Hundreds of other concerns doing a nation-wide business have adopted Studebaker Cars as standard for the same reason.

Dealers who follow up this advertisement with the attractive, forceful folders, booklets, letters and other matter furnished by Studebaker will gain increased business.

This is just one of the ways Studebaker helps dealers to sell Studebaker Commercial Cars.

Perhaps Studebaker Commercial Car territory can be arranged for you. Write us today for detailed information.

STUDEBAKER

Detroit, Mich.

South Bend, Ind.

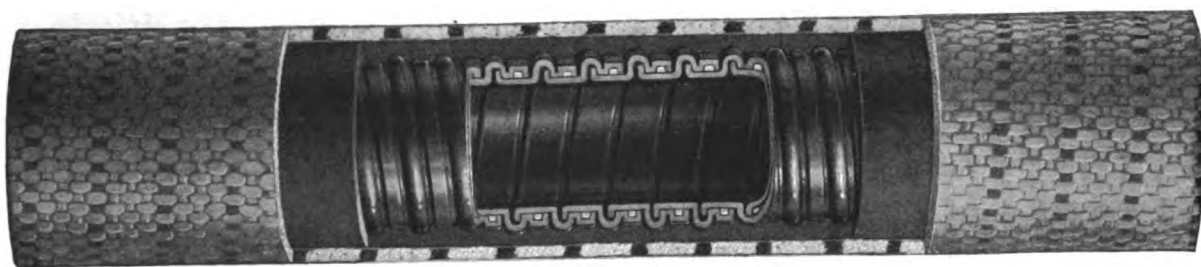
Walkerville, Ont.

Address all Correspondence to South Bend

It pays to be a *Studebaker* dealer

When writing advertisers please mention Motor World—It identifies you

TRIPLEXD



The New Gasoline Hose

WE have made the statement that TRIPLEXD is the best gasoline hose on the market. This is a statement easy enough to make, you will say, but how about proving it?

Construction

TRIPLEXD is made up of a flexible metal tubing on the inside interlocked with a second coat of special gasoline rubber.

This second coat in turn, has, woven tightly around it, the outer coating of fabric. The method of manufacture is such that these three form one inseparable whole.

This is how it is made. Now as to how it works.

Experience

TRIPLEXD has been in use for years on gasoline pump outfits subjected to the hardest kind of wear and tear. Users of these outfits find TRIPLEXD hose as efficient as ever after two and a half and three years of service.

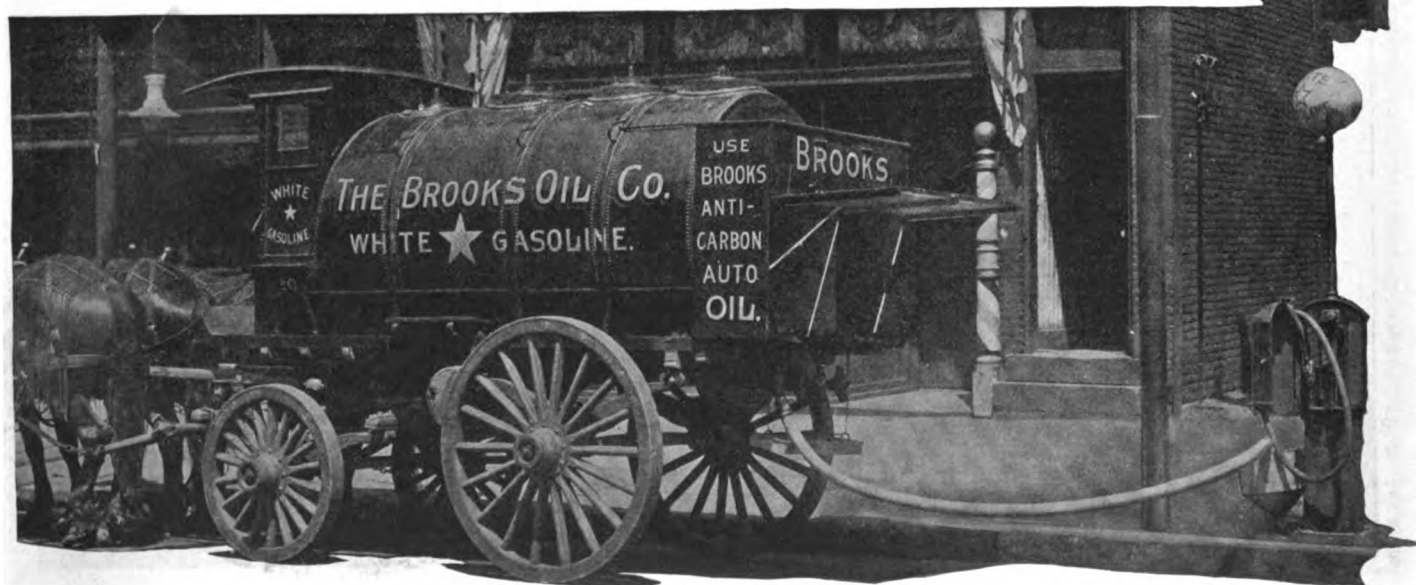
You know the average life of gasoline hose.

Guarantee

We guarantee TRIPLEXD for one year, at least, of satisfactory service. This guarantee holds good whether you buy TRIPLEXD from us or on the gasoline pump outfit you purchase.

"Specify TRIPLEXD on your next pump outfit"

METAL HOSE & TUBING Co.
INCORPORATED
RAYMOND & TILLARY STS.,
BROOKLYN, N.Y.



When writing advertisers please mention **Motor World**—It identifies you

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY

The Class Journal Co.

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The Class Journal Co.

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COMING!

Watch for the July 3 edition. In it there will be complete specifications of passenger cars, motor trucks, tires and tubes and electrical equipment.

Advertisers' Index on Pages 154-155

"NORMA"



BALL BEARINGS

A car of style, distinction, dependability—easy enough to recognize the first two qualities. But how about the third—the quality without which style and distinction are useless? Look to the magneto—look to the lighting generator—together they make or mar service. If they carry "NORMA" Bearings, you will know that they are high-grade, high-duty, long-service accessories—the kind that builders of the best cars have found it best to standardize upon.

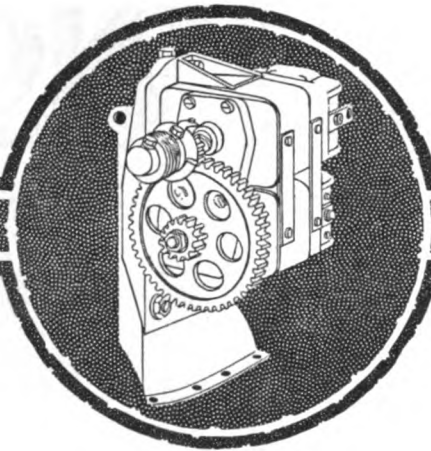
Be Sure. See That Your
Electrical Accessories Are
"NORMA" Equipped.

THE NORMA COMPANY OF AMERICA

1790 BROADWAY NEW YORK



System Complete



\$85 F.O.B. Boston

GRAY & DAVIS STARTER for FORD cars

GRAY & DAVIS

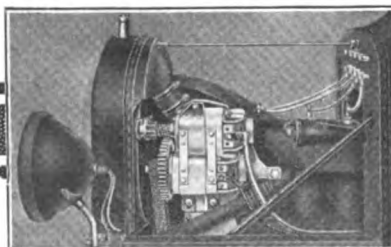
ATLANTA, GA. Ozburn Auto Supply Co., Inc.
BALTIMORE, MD. Eugene I. Rosenfeld & Co.
BOSTON, MASS. Mitchell & Smith, Inc.
BUFFALO, N. Y. Melnhard Auto Supply Co.
CHARLESTON, W. VA. Triple State Electric Co.
CHICAGO, ILL. U. S. Auto Supply Co.
CINCINNATI, OHIO Ohio Rubber Co.
CLEVELAND, OHIO C. Z. Sedgley
COLUMBUS, OHIO Justus & Parker Co.
DALLAS, TEXAS Ferris-Dunlap Auto Supply Co.
DENVER, COLO. Auto Equipment Co.
DES MOINES, IOWA Electrical Laboratories Co.
DETROIT, MICH. Fred E. Holmes Company
FORT DODGE, IOWA Swaney Auto Co.
HARTFORD, CONN. Elmer Automobile Co.
INDIANAPOLIS, IND. The W. R. Wheeler Co.
KANSAS CITY, MO. Kansas City Auto Supply Co.
LOS ANGELES, CAL. Western Rubber & Supply Co.
LOUISVILLE, KY. Roy E. Warner Co.
MEMPHIS, TENN. Ozburn Auto Supply Co., Inc.
MILWAUKEE, WIS. Lemke Electric Company
NEW ORLEANS, LA. Interstate Electric Co.

In constant use on thousands of Fords everywhere. The satisfactory service rendered, proves Gray & Davis system to be mechanically and electrically correct. The many advantages are quickly apparent to the most exacting motorist. Separate unit for lighting and starting. Cranks stiffest engine. Supplies steady light—running or standing.

The dealer sells Gray & Davis equipment with the knowledge that this system will fulfill every claim made for it. Systems are carried in stock by all of our Distributors, or may be obtained from the factory. Send for dealers' proposition.

GRAY & DAVIS, INC.,
Boston, Mass.

CANADA—UNIVERSAL CAR AGENCY,
WINDSOR, ONT.



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RICHMOND, VA. Kaehler Motor Company
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UTICA, N. Y. Utica Cycle and Supply Co.
WASHINGTON, D. C. Charles Rubel & Co.
WICHITA, KAN. Auto Supply and Tire Co.
WINDSOR, ONT. CANADA
Universal Car Agency

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, June 20, 1917

No. 12

Stepping Forward in SALESMANSHIP

World's Salesmanship Congress Meets a Second Time and
Outlines Upward Progress for the Men Who Sell

Things the Congress Plans to Do

- 1—Raise \$100,000 in a month.
- 2—Increase its membership to 100,000.
- 3—Further standardize sales study.
- 4—Establish chairs in colleges.
- 5—Enable students to step from school into the business world and be efficient.

Things the Congress Has Done

- 1—Gone through its first year without a money loss.
- 2—Secured a membership of 16,000 in 45 clubs.
- 3—Sent sales instructors over club circuits.
- 4—Stimulated greater efficiency in numerous organizations.
- 5—Interested educators in sales work.

DETROIT, June 16.—The first year of the existence of the World's Salesmanship Congress has seen upward progress in the field of selling. While much of the progress is in remote ramifications, there are definite instances of corporations which have effected greater sales efficiency and made greater profits because of the first session of the Congress, held last July.

The second session was held the first five days of this week, beginning with lay sermons by sales managers in Detroit churches Sunday. The Congress proper opened Monday morning and continued with morning, afternoon and evening sessions until Thursday evening. More than 150 lectures were given by men who are successes in their fields of business. The lectures if set in type the size and width of a Motor World column would be about 300 feet long.

At the close of the session Thursday evening the Congress reached a most important point in its career. Norval A. Hawkins, Ford's sales manager, who was re-elected president, stated that the Congress *must justify its right to live, or must die, within the next month.*

He said \$100,000 is needed to carry on the big work that has been outlined for the organization, and that an intensive campaign will be undertaken to raise this amount. If the proposition cannot be financed in a big way its work will be so handicapped that it may as well disband.

Plans are in hand for this financing and prospects are considered good. When this financing is completed Hawkins, he announced, will resign in order that the Congress may not become a "one man movement." It is also considered probable that the next

meeting will go to St. Louis in order that the Congress may not become too closely allied with "one city." It was organized in Detroit and its first and second meetings have been held here. St. Louis made a strong bid for the next meeting. The meeting place will be selected by the Executive Committee after the work which is being done in connection with the financing campaign is ended.

In case of the resignation of the president the vice-president will take the place. He is Winslow Russell, Hartford, Conn. D. M. Barrett, who conceived the Congress and founded its magazine, "Salesmanship,"

was retained as secretary-manager under a five-year contract.

The founding of clubs and the routing of lecturers to them has been a principal part of the Congress's work during its first year. There are now 45 clubs with 16,000 members. Of them St. Louis is the largest, with 3529 members, and was awarded a silver cup. Minneapolis is second with 1505 members.

The Congress management has been busy compiling data on the subject of salesmanship and, it is reported, a set of books may be forthcoming on the subject under the auspices of the organization.

Upward Steps in Salesmanship

IT would be impossible for between two and three thousand men deeply interested in salesmanship to get together without at least a big moral good coming out of their contact.

So intense is the interest of the members of the Congress in the subject of selling that enthusiasts go far in their predictions. Harvey R. Young, of Columbus, Ohio, said this:

To Double Business with Efficient Salesmen

"Salesmanship to-day is receiving so much attention that I predict within a decade our progressive concerns will be able to do, in many cases, double the volume of business with half as many salespeople as they are using at present."

Instances similar to this are known in the business field to-day. Efficiency in sales methods has worked great results. In the automobile field the Paige Motor Car Co., so said President Harry M. Jewett, has within the last year injected greater efficiency into its methods through the ideas and inspiration gleaned from the first meeting of the Congress a year ago.

Much of the work at the Congress dealt not with the theoretical and so-called "mysteriously psychological" side

of selling but with plain every day business facts.

One speaker even went deeply into the subject of cigarettes, telling how they had rendered some of his salesmen useless and how they might detract from the efficiency of a man who was not physically harmed.

This speaker also touched upon the expense account, and said he thought it fairer to the company and the man to set a fair figure for expenses each week and not ask the salesman to turn in an expense account.

Other speakers touched upon the subject of shined shoes, neat person and proper dress. One even told of "the fat man in the pinched-backed suit in the

audience." These often overlooked details loomed up as highly important facts under the treatment of the speakers.

Such often disregarded things as profanity and the right use of words were handled by successful men.

Don't Know of Better Methods

It was pointed out that thousands of salesmen are not up to par because they have not had the opportunity to learn of better methods. He said sales managers should be held accountable for this condition, and should give more attention to teaching men the things the manager knows make for success.

Training men is one of the big ideals of the Congress. It believes that salesmen are "made and not born," and that a very mediocre man can be trained to be better than an untrained man of greater natural talent.

The value of the right man in the right place was not deprecated, but it was maintained that the right man trained is many times more valuable than the same man untrained.

The Congress applauded enthusiastically when one speaker said booze has no place in modern business, and, even though it was hot for two days, and cold for two days, the bars were not as well

To Sell Liberty Bonds

The World's Salesmanship Congress has offered its services to Uncle Sam the next time there are any Liberty Bonds to be sold. The management of the Congress believes the application of up-to-date sales methods will move the bonds in a hurry—and, according to some of the speakers, if you believe it that's all there is to it.



The World's Salesmanship Congress had its picture taken Monday morning after the first session. The two men near the center, Works, made the

patronized as they would have been a few years ago.

How to Smile, and When

How to smile and when, and what it means, was another of the simple subjects discussed. The handshake was another.

All of these little things are common sense rather than psychology or high intelligence, yet there seems to have been a need for their emphasis because of the lack of attention they have received by some organizations.

Going further into the scientific side of the subject, part of one afternoon was devoted to character analysis and phrenology—which is NOT bumps—and on another afternoon an expert analyzed and charted a man on the stage, and the "victim" said the analyst was correct in what he said he saw in the head and face of the young man.

That there are right and wrong ways of making gestures was asserted by another man, who said he always gestures inwardly rather than outwardly; that is, toward himself rather than outward in a scattering way.

Painting Word Pictures

Painting word pictures is essential to the best salesmanship, said another. He said the Liberty Bonds could be more readily sold if handled by a group of trained salesmen. He said the results instead of the goods must be sold. He said the vacuum cleaner man sells saved time rather than machinery, and that the motor car salesman should sell pleasure and comfort rather than steel and materials.

Basing his story upon this theory, President Harry M. Jewett, of the Paige company, told in the automobile session of how he had sold a car where a salesman had failed.

It was pointed out that the satisfaction the buyer finds in the goods, especially machines, may be due to the after-service rather than to the machine itself. He said this after-salesmanship was just as important as the preliminary work.

How to Find Prospects

HOW to find prospects and sell cars in war times was told by Carl H. Page, New York Hudson dealer, at the automobile men's session of the World's Salesmanship Congress Monday afternoon.

He said that about the time war was declared and business slumped his company decided to concentrate on what prospects it had and also to increase the percentage of prospects sold. Some "dead" prospects were put back on the list and a study of business conditions was made.

Lists were made of businesses likely to be favorably and unfavorably affected and work was concentrated on the businesses that were scheduled to prosper. He said that 95 in 100 lines of business are favorably affected. This intensive effort, he stated, kept sales up to normal, whereas they had started to fall off.

How to get men to make the upward start toward better salesmanship was an interesting subject. It was recognized that this is one of the big problems in bringing salesmanship to a higher plane.

To get better salesmen and saleswomen it was declared by one expert that a proper incentive is essential, and

that this must be a money inducement. He said he believed it possible to sell more goods with fewer salespeople, and to pay them more money if this combination were made dependent upon their doing the work of those whose services were dispensed with.

Integrity was named as one of the fundamentals. In fact, one speaker said the salesman who isn't a hard worker isn't honest, and that conscience and not ambition is what makes men concentrate on their jobs.

Mission of the Roadman

The roadman and his mission in the scheme of things came in for a share of discussion. He is considered a wonderfully potential missionary man.

The Congress even went into the subject of home and foreign markets, and pointed out the kind of salesmanship that is necessary if the United States is to take its place in foreign fields, both now and after the war.

A big note sounded by a big speaker was that of "democracy in business." He said the day of high-handedness had passed, that business must get close to the people, that it must be honest and co-operative, that it must deal democratically with its employees, and that since the people pay the expenses of the business the business is merely the custodian and user of the people's money.

What Was—and Might Have Been

IT was annoying to the speakers and the Congress to have a green light turned on about 3 minutes from the end of the speaker's time, a red light a minute or two later, and then a minute later a persistent buzzer.

Some of the speakers were right in the middle of interesting talks when this happened, and some should have been stopped long before, but it made no difference—they all stopped.

If they had not been stopped the Congress might have been in session yet, annoying though the lights were. Some arrangement should have been made by

both management and speakers so these annoyances would not have occurred. The first part of many of the talks dealt with the same generalities, repeated over and over, and might well have been omitted, but who wants to tell a speaker his speech isn't 100 per cent perfect?

The programs were magazine size. A program of pocket size would have been appreciated.

The idea of having but one session at a time—with the exception of one afternoon—was excellent. Last year there were several sessions going at the same time and many were missed. The eve-



marked with X's, are President Norval A. Hawkins (left) and Charles M. Schwab (right). Schwab, who runs the big Bethlehem Steel opening address

ning sessions this year did not work out at all badly. The delegates surely did have to stay on the job.

Many of the sessions didn't start on time. This was probably the fault of

everyone, for the audience was slow in arriving and the chairman was generally anxious to give those who desired to attend all the time he could.

More discussions by the audience and

not quite so many papers would have been interesting. The program was so full there was little time for anything else, and by the time a program ended it was time to eat again.

"The Gold in Your Prospect List"

W. J. Drumpelmann

*Drumpelmann is assistant sales manager of the Chalmers Motor Co.
His address was made before the automobile section of the World's
Salesmanship Congress Monday afternoon at the Tuller Hotel*

YOU must fully appreciate that the names on your Prospect List are the raw material which in conjunction with the working of your system, which is part of your business machinery, must effect the desired results. As a matter of fact, it is the only material you have to work with on the selling end. The Prospect List is not credited with its proper value.

It is valuable and should be guarded as such; in fact, I know of a distributor who appreciates this to the extent that his file is put in a safe every night. He has stated that with it to start with after a fire he would again be ready to do business at once.

Names alone without the properly directed effort in handling them will never result in sales, and while I appreciate that the responsibility of this effort being properly directed is on the shoulders of your sales manager, the best directed effort in the world will never bring results unless intelligently carried out.

First, Plan the Campaign

It is very essential that we first map out our campaign. We must have some objective to shoot at—in this case, to turn prospects into buyers. In mapping out our campaign, it is not sufficient to decide that we will carry on a campaign of circularization—we must actually map out and *decide the entire series of letters, their subject, how frequently they are to be sent, and as to whether they are to be a part of the campaign alone or to be interspersed with personal calls.* In other words, balance the entire plan of operation, for if we are careful in making a good beginning and then follow up to the limit, we cannot help but reach a successful ending. Thousands fail because they do not scientifically direct their efforts. They work on a hit or miss schedule.

Before discussing the best method of handling prospect cards, I consider it proper to enumerate some of the fundamentals which all salesmen will have to follow to be successful in extracting this gold.

We must first be sure that the miner (who is our salesman in this case) is well equipped with the proper tools.

Never break an engagement. If the prospect finds that you cannot be depended upon to keep an engagement, he is entitled to question your claims and statements regarding your product.

Salesmen lose many sales by their inclination to argue about mechanical details. Frequently a prospect will ask: "What kind of a rear axle has your car?" The salesman is not satisfied with answering the question by stating it is a semi, three-quarters or full floating, but he immediately launches forth into an elaborate explanation and argument as to why his particular type is the best.

Forget the Mechanics

This only tends to raise doubt and question in the prospect's mind and frequently has caused him to bring up this same subject with one of your competitors, who, possibly being the better salesman, convinces him that your particular type is not the correct one. As a matter of fact, he probably asked the question more to make conversation and to let you know that he knows something about a car; if you will answer his question without any comment, unless he wants a detailed explanation, he will take it for granted that your type is the correct one.

Talk no technicalities. Rather than endeavor to sell him your car because it has some particular mechanical feature, which may after all be of no interest to him, sell him atmosphere, sell him the good this car is going to do him from a health standpoint. Sell him the advantages and pleasures of touring, make him actually visualize himself behind the wheel of your car, driving to his club or to his house. Make him actually feel that the gaze of his neighbors is upon him as he is driving up in his new car.

The more I think of this end of our business, the more I can understand why it has been such an attraction for the young man, the live wire. It is one which permits of the greatest enthusiasm. A man can really enthuse selling an automobile, but when I think of the fellow who has to sell lumber and bricks, I often wonder how he does it.

If one day of the week is any better than another, it would undoubtedly be Monday, as Sunday puts a prospect in a closing mood. He longs most when he

sees his neighbors starting in their car, consequently is more susceptible directly after this feeling than later in the week.

Closing a sale on Monday also has a psychological effect with many salesmen, as they feel the week has been properly started and they have set a pace which will bring forth their best efforts for the balance of the week.

Salesmen are continually allowing two days each week to go to waste; yesterday, which belongs to the historian, and to-morrow, the property of the dreamer. They seem to be satisfied with getting a promise to make a decision at some future date or to take another demonstration at some other time; not enough effort is made to actually close the sale now—to-day.

Many salesmen have wonderful ability in presenting a car—have all the necessary qualifications to make successful salesmen, but lack that one very necessary essential of closing or pushing the man over the line. They seem to be afraid to actually ask the man for the order. They seem to feel that if they do and are turned down that they will close the interview and that the prospect will feel the matter is closed.

It is always a good plan, particularly with a hard prospect, to leave him with some good excuse to call again. This can be brought about either by bringing back some part like a connecting rod or piston, which you may have had under discussion on your previous trip; or, "Mr. Jones, we were discussing the riding qualities of our car. I have one out front and would like to give you a practical demonstration of how easy it rides."

Make It an Event

There is not sufficient importance attached by many salesmen to the fact that purchasing an automobile with a great many people is *an event and not an incident.* By all means, treat it as an event. Let him know that you are interested in seeing that he gets one hundred cents on the dollar, and always remember that if a prospect has been assisted to a wise and economical selection, he will probably look to the same source for guidance again. His verdict depends largely on your ability to gain his confidence.

Find out what your prospect is interested in and then interweave your car with that interest. If he is a fisherman, a word or two on his ability to reach the fishing grounds without having to get up at 3 a. m. to make a train to a certain junction. There are any number of ways in which his personal comforts can be used as a wonderful sales argument.

It is very necessary that you study human nature. This will enable you to be tactful. It is a good plan to allow the prospect to feel that he is leading the conversation, as so many of them feel proud of how much they know about a car and seem to be particularly anxious to air that knowledge when talking to an automobile salesman, and they want to feel that they are buying the car and not having it sold to them.

Handling Cards

IN laying out your day's calls don't stop because it is raining. The probabilities of finding the business man in his office are not only better on a rainy day, but that fact frequently helps to sell a Sedan or closed car. I have in mind a salesman who called upon a prospect in a severe rain storm. He closed the sale on the looks and reputation of the car. Had he demonstrated it the prospect would have found that the rear seat did not comfortably carry three members of her family, who were slightly over the average size. When she discovered this she could not blame the salesman and 60 days later she came back and traded this car for a seven-passenger which was more commodious. He could not have sold her the seven-passenger in the first place because it was more money than she felt at that time she wanted to put in a car.

It is needless to mention the fact that your prospect card in itself should be very complete. Distributors are beginning to appreciate this fact and are no longer confining themselves to a two-by-four card which is meager in its information. Get a card which will practically be a history of your entire dealings with the prospect from the very first call to date; also noting the various letters which have been sent him.

See Prospect Every Week

A salesman should be in touch with a prospect not less than once a week. Many concerns find it advisable, if a salesman doesn't land the order after three calls, to transfer the prospect to another salesman, working on the theory that the more calls the same man makes the less effective his calls become. I believe a sales manager should be guided very materially in this matter by the temperament of the prospect. Frequently, following him by another salesman will cause an antagonistic feeling on the part of the prospect, while with others it is just the thing needed to bring them to a decision.

No salesman should be permitted to file a name until he has made a personal call. It is a mistake to permit a salesman to have any rights to a name merely because he has telephoned or written a prospect.

Your files should be gone over frequently with the idea of eliminating the names of parties who have purchased other makes of cars.

In this case, do not make the mistake of transferring same to your dead file, or destroying the card entirely. Make it your business to get all the information regarding the car your prospect purchased, how much he paid for it, and whether he traded a car

or not. Prices have changed and will change to such an extent that it is impossible for you to remember a year or eighteen months hence what price this party paid for his car, and you all know that at that time it is only natural for him to insist that he bought his car after the price had advanced.

After posting this data on your cards, file the same in your advance file one year ahead, and then start on him again just as if he were a new prospect.

Don't stop calling just because a prospect gives you any number of reasons why he is not in the market. Make it a point to find out the real reason and you will then be equipped to better handle the situation.

It is an excellent plan when demonstrating to teach a beginner how to drive. Many are fearful that they will not be able to learn how to handle a car. Teaching changes this feeling and frequently will kill your competitor's chances as they are still skeptical as to their ability to drive his car.

Actually writing out a daily report will help bring to mind some of your shortcomings in the previous day's work and better equip you for to-day's.

If the section you are operating in does not permit of personal calls on all of your prospects and you are following some by a campaign of letters, be sure to make a personal call immediately that one of these prospects shows signs of interest.

In calling upon a prospect make it a point to have something definite to begin your conversation. Don't just approach him with "I would like to interest you in a car," or "Why can't I sell you a car?"

I consider it a mistake to have a dead file. If you must have a name for it call it the "Dormant File" because every man is a prospect until he either buys or dies. You

should go over this file at regular intervals because you will find sooner or later that occasion will establish the value of old prospects. With many of them circumstances were not ripe at the time you previously worked on them.

Follow Up

IF I were to be asked the most important factor to mine the Gold from your Prospect List, I would have no hesitancy in saying "Follow Up."

Bringing the attention of a person to your product makes a prospect; it takes "Follow Up" to make a customer.

You never can tell when a man is going to change his mind. Make it a rule never to forget a prospect and above all, don't let him forget your product. Many make the mistake of trying to impress a prospect in such a manner that he will not forget them personally. I feel that the salesman should endeavor to bring the fact into the foreground that he is the representative of the so-and-so company, and not Jim Jones or Harry Smith. A salesman should present himself in a manner which will reflect credit on the organization he represents and thus command the respect and attention that the house is entitled to. The Federal Officer never has any trouble in receiving the recognition which is due him, owing to the fact that you and I appreciate that he is not representing himself but Uncle Sam.

Follow Up. Never be afraid to reiterate. Anything worth telling is worth repeating. When you decided that you wanted to make Bess Johnson Mrs. Jones, you did not stop with making one or two visits, but you kept calling until you sold yourself to her.

What better illustration can we desire of the value of reiteration than the Bible? Gentlemen, from cover to cover it has but one story to tell, but how many different ways is this story brought to our attention, always with the idea of selling us one thing. The writers knew they had a story well worth telling and did not hesitate to repeat.

I need not draw your attention to the persistence of the book agent and the insurance solicitor. You have undoubtedly all had battles with gentlemen of this class and immediately after you told them you were not interested they stopped calling, did they not? THED DID NOT. And you must admit that as a class they are successful salesmen.

Prospects Are Worth Money

You would not permit the foreman of your shop to throw away parts because they did not fit the first time he endeavored to assemble them. They have cost you money and you expect him to machine and fit them so that you get a return for the money invested, and the quicker you realize that every name on your list has cost you a definite sum just that much quicker will you appreciate the necessity of following up prospects.

In selecting salesmen, experience has shown me that it is far better to have the plugger, the man who never says quit, and follows through, rather than the star. The average results of the plugger will be far better than those of the star.

When you fully realize that your file is as much a part of the machinery of your organization as your lathe or drillpress, you will undoubtedly then begin to watch this piece of machinery as carefully as you do those in your shop.

Always remember that the real salesman, by that I mean the kind who gets results, never has to look for a position.

How the Congress Proposes to Finance Itself

In order to raise \$100,000 for its work the World's Salesmanship Congress proposes to

- 1—Raise the membership fee \$1, the dollar to go to the Congress.
- 2—Sell sustaining membership at \$100.
- 3—Sell advertising in the Congress magazine.
- 4—Carry on an intensive campaign the week of June 25.
- 5—Each club to meet in its home town June 25 to begin the work.
- 6—A big meeting of each club to be held June 29 to get the results.
- 7—Chips of small denomination are to be issued to each member for the money he turns in, each chip to bear his name.
- 8—The chips to be given to President Hawkins in a basket at the end of the campaign.
- 9—A private wire to run into Hawkins's office while the campaign is on, and daily messages to be sent to and by clubs throughout the country.

Earl Cooper and His Stutz Beat Them All at Chicago

Driver	Car	Time	M.P.H.	Prize
Cooper	Stutz	2:25:28.8	103.15	\$8,000
Mulford	Hudson	2:26:11.03	102.62	4,600
Durant	Delage	2:26:36.43	102.04	2,100
Hearne	Duesenberg	2:27:48.03	101.52	1,500
Haines	Mercer	2:30:56.43	99.39	1,000
Henderson	Dusenberg	2:33:07.95	98.09	900
Lewis	Hoskina	2:35:08.07	97.60	800
Vail	Hudson	2:39:03	94.31	800
Chevrolet	Frontenac	2:40:08.86	93.67	600
Fontaine	Mercedes	2:42:23.9	92.63	600

CHICAGO SPEEDWAY, June 16—In one of the most spectacular finishes in years, Earl Cooper driving a Stutz won the 250-mile Derby to-day. He didn't make a stop. Until the middle of the race he was in the ruck. Then he commenced to pass cars. Soon he had them all behind him. At the end he had covered the distance in 2 hours 25 minutes and 28.8 seconds—103.1 m.p.h.

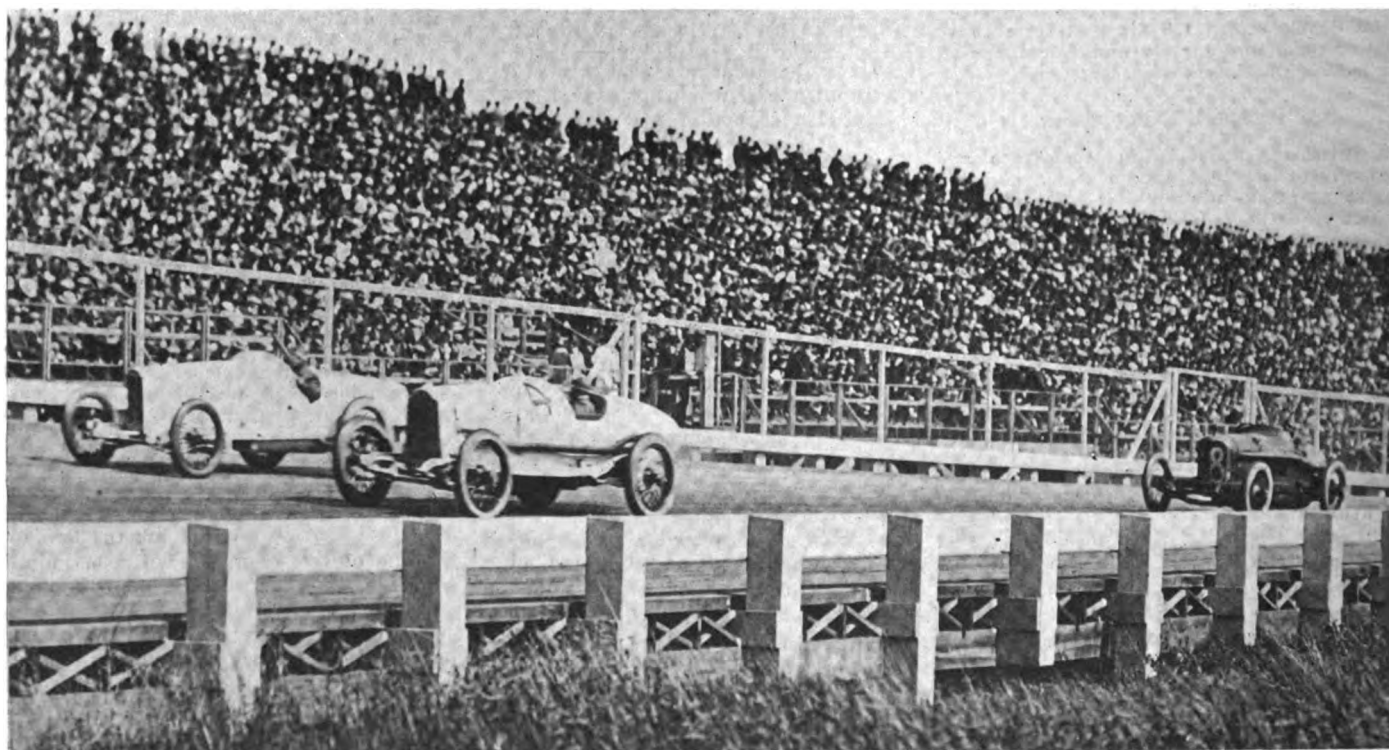
But Mulford in a Hudson gave him a terrific battle for first place. He was only 42 seconds behind Cooper when he flashed over the wire. And Cliff Durant in a Delage was but 25 seconds behind Mulford. Eddie Hearne in a Duesenberg

was next across, and so narrow was the margin between him and Durant that it was at first thought that Hearne had beaten Durant. As it was, however, he came in 25 seconds later. The first four to finish crossed the wire within 1½ minutes of each other.

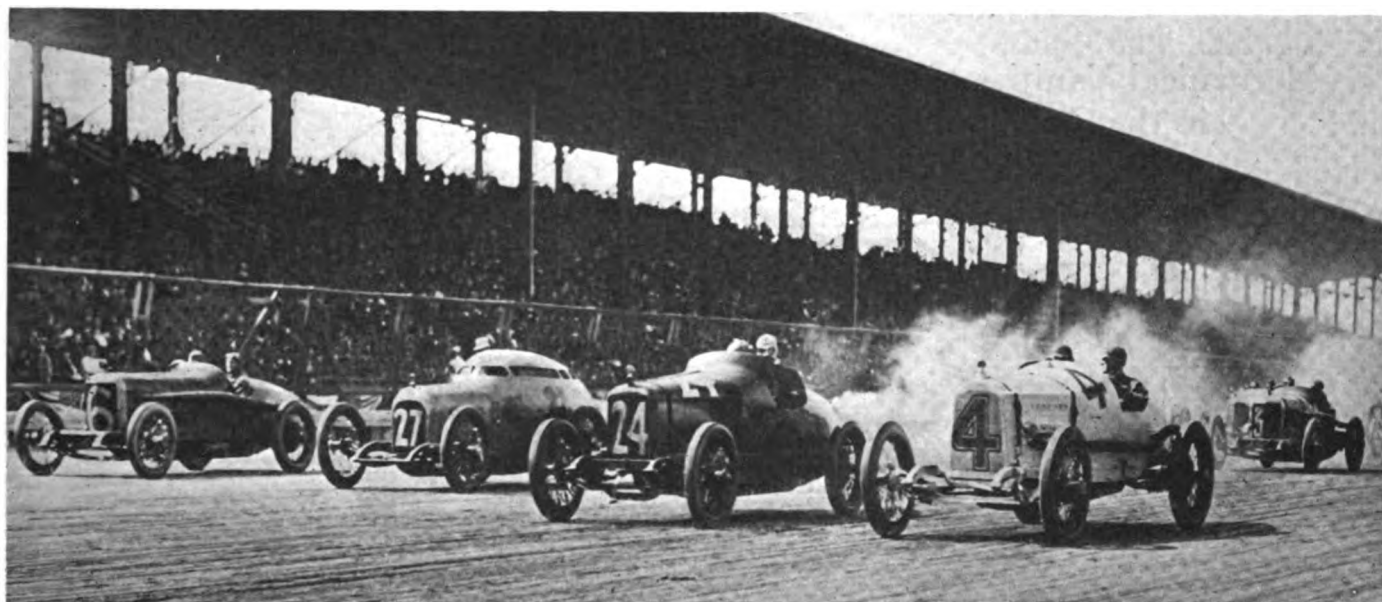
There were two races during the afternoon. These were the 250-mile event and a non-professional race which went 100 miles and was taken by Percy Ford, Jr., in a Haynes Twelve. Ford's real contenders were two Mercers driven by Arthur Bromstadt and Andrew Ortmeier, the latter a licensed Government aviator on leave.

Ford won the race handily at 89 miles an hour, Ortmeier coming in second at 84 m.p.h. Ortmeier and Ford staged the real fight in this race, see-sawing for the lead for 70 miles. Then Ford ran away from Ortmeier.

Cooper's victorious finish in the big race ended a most excellent example of consistent driving. During the early part of the race Cooper was not up among the leaders but toward the middle began to show in the money and steadily climbed until after 170 miles he was running second with Mulford as the leader and when Mulford lost his position on account of two short pit stops within 15 miles of



SOME CROWD saw the race. It is estimated that between 40,000 and 60,000 persons packed themselves into the grandstand and bleachers. This is the bleacher section during one of the thrills of the race



OLDFIELD'S "GOLDEN EGG"—which is number 27 in the picture—looked good at the start of the race, but it turned out a lemon. Barney ceased to be a real factor after covering 48 miles

the finish, Cooper went into the lead.

Mulford seemed to have the race won up to the time he made his two stops and his only two at the pits, but these delayed him so that he could not regain the advantage of Cooper.

Although he was beaten for the stellar honors of the day, Mulford cleaned up fairly well by adding to his second place the distinction of winning the two moneyed intermediate distances by leading at 100 miles and at 200 miles, and requiring a bonus of \$500 for each.

Fight for Third Place

Durant and Eddie Hearne driving Du-senbergs had a neck and neck fight for third place and to those who could take their eyes from the fight between Cooper and Mulford the battle for third position offered as many thrills as did the one for major honors.

Probably the largest crowd which ever witnessed a race at this speedway saw the battle, the attendance being numbered from 40,000 to 60,000.

The program of the day's events was given a patriotic flavor by making it a benefit performance for war causes in which patriotic funds got a percentage of the net receipts and also by featuring an exceptionally well arranged sham battle in which 3000 Chicago high school cadets staged "an attack on the trenches," as a demonstration of the manner in which war is waged in Europe. All the paraphernalia of modern warfare was in operation, including preliminary scouting and bomb dropping by eight military aeroplanes from the United States Aviation School at Ashburn, their bombardment by anti-aircraft guns in the trenches, an armored tank whose armor consisted of cloth, gas bombs, exploding mines, etc.

De Palma was the favorite with the spectators, but he failed to live up to their expectations, in spite of the fact that the Packard Twin-Six generally was believed to be faster than any other car

on the track because it made the best time in the qualifying trials, turning the course at approximately 110 miles an hour.

When De Palma Led

De Palma did have the early advantage, taking the lead before the tenth mile and holding it for three laps. But he developed ignition trouble which slowed him down and he dropped back gradually until he put in a new storage battery, and then started out with scant hopes for regaining the lost time, finally finishing in eleventh place.

Oldfield, whose new car had been widely heralded and aroused great interest among the spectators, withdrew after running 48 miles. He managed to take the lead in the sixth mile and held it for another lap, then dropped back to second, and the tenth mile when De Palma passed him, in a thrilling neck and neck brush, in front of the grand stand.

From then on Oldfield did not figure among the contestants. Oldfield's new car popularly called the Golden Egg proved to be a lemon, temporarily. This is a construction with which Oldfield expected to increase the safety and at the same time, decrease the wind resistance. It has been mentioned before as Oldfield's Submarine. Driver and mechanic are completely enclosed in a sheet steel house, shaped to cut down wind resistance, the only openings being rather narrow slits through which the occupant may look. In practice, Oldfield had wire mesh in front of these slits, but removed the mesh before the race because it interfered with his vision. The car has an aluminum engine.

Twenty-seven cars lined up for the start in the order of the speed made in their qualifying laps, the fastest car at the pole. They lined up four abreast in seven ranks, except the last row, which contained only three cars. De Palma, by virtue of his qualifying speed of 110 miles an hour, had the pole position in

the front rank for his Packard Twin-six.

Five other cars had been entered, but did not show up at the driving line. These were the two Crawfords, one Olsen special, Ostewig's Special, which could not be made ready in time after the fire at Cincinnati, and a Johnson Special.

At 2:56 the starting bombs gave the signal for the preliminary lap, and the 27 cars got away in good order. They came around to the starting line well lined up and Starter Wagner's flag sent them away on the 250-mile grind.

Joe Boyer shot out from the bunch and took the pole away from De Palma at the beginning of the first lap. At the end of the first lap, Boyer was leading with De Palma second and Barney Oldfield third, these three somewhat ahead of the bunch.

DeVigne signaled his completion of the first lap by going into the pit, and withdrawing on account of a cracked waterjacket.

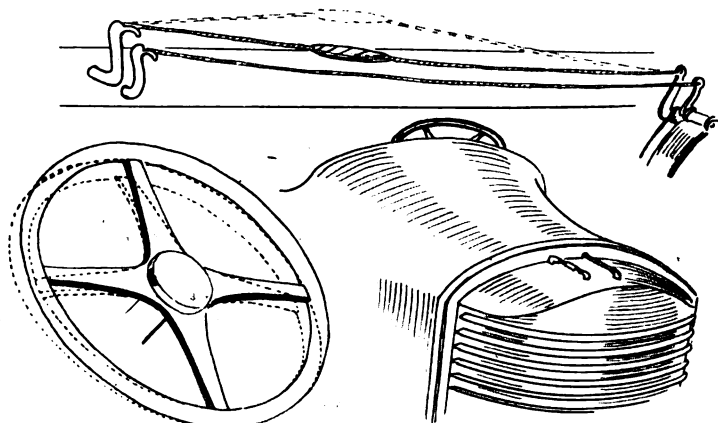
Oldfield Shows Speed

De Palma took the lead in the next lap, both he and Oldfield passing Boyer. In the third lap, Oldfield pushed to the front with De Palma second, Boyer third, and Joe Thomas fourth. Diedrich was the trailer of the field and away behind. At the end of the fourth lap, after eight miles had been covered, Oldfield had increased his lead on the field with De Palma second and Joe Thomas and Louis Chevrolet running neck and neck for third.

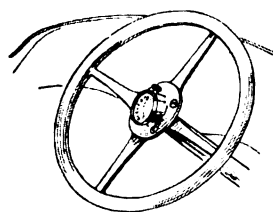
Louis Chevrolet again took the lead at the end of twelve miles, with De Palma second, Boyer third, and Joe Thomas fourth. At fourteen miles, Thomas had spurted up into first, and De Palma also passed Chevrolet, who was running third.

At the 20-mile post, Ira Vail had gained the lead, with De Palma second, Hearn third, Chevrolet fourth, Haines fifth, and Mulford in sixth place. The time for the 20 miles was 11 min. 26.2 sec., an average of approximately 107 miles per hour.

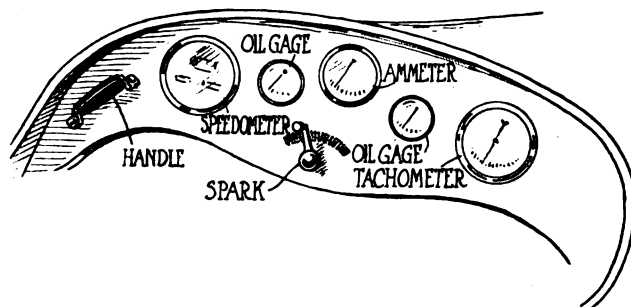
Mechanical Vanities of Some Cars in the Chicago Race



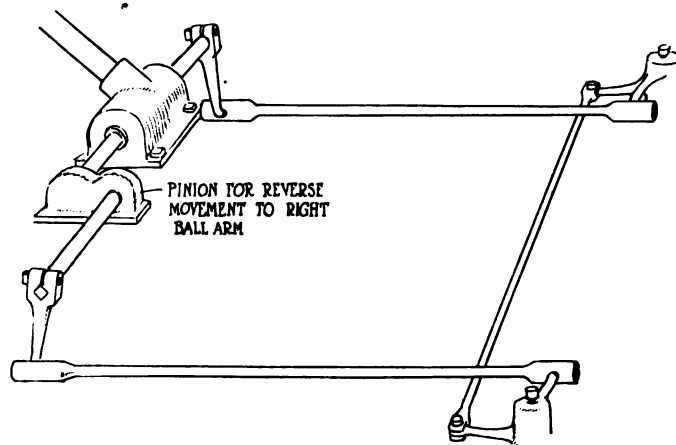
One of the Frontenacs had no brake levers, cables running direct from the pedal to the brakes. To increase braking pressure the driver merely pulled up on the cable. The steering wheel was flexible to absorb vibration and there are fins on the oil tank to cool the oil.



Here's another of De Palma's vanities—a clock mounted atop his steering wheel so he can watch how fast time flies and try to catch up with the old beggar.



De Palma prizes his car very highly; it is one of the best looking jobs on any speedway. On the dash there is a variety of instruments—so much so in fact that it looks something like the boilerhead of a locomotive. But Ralph uses them all.



Oldfield wasn't taking any chances on his steering going wrong when he designed this lay-out. Both wheels are controlled. Anyway, Barney says the car steers easier with linkage like this, and he has to drive the car.

The terrific speed had begun to tell on many of the cars, and they were coming into the pits at this time with great rapidity. Buzane went out at this stage with a broken piston, and Henning went too with a broken piston ring.

Thomas then forged to the front, driving like wild, and turning laps at a speed close to 107 miles an hour. Patterson came in with a badly twisted wheel and the examination at the pit developed that the frame also was cracked, so he withdrew.

Thomas soon lost his lead and his participation in the race when on the twenty-fourth mile. His car skidded,

turned completely over and jumped the track. Luckily, neither Thomas nor his mechanic nor any of the spectators were injured. Every effort was made to put the car back on the track, but it could not be gotten into shape in time.

At the 100-mile post, Mulford, who had been gradually creeping up, went into the lead with De Palma second, Dave Lewis third, Eddie Hearne fourth and Cooper fifth. The race for the next 60 miles was simply a one-two proposition, with Mulford leading and De Palma second, at a speed varying between 104 and 104½ miles an hour. At 120 miles, Cooper began to show among the first

three, and held that position for the next 50 miles, passing De Palma for second at 170 miles.

By this time De Palma's ignition trouble began to evidence itself in his lowered speed and he stopped for nearly fifteen minutes, to put in a new battery. This seemed to give new life to his motor and he made some fast laps, but could not pick up the time lost in the short distance yet to go. So from 170th mile on, he no longer figured among those in the moneyed places.

At 230 miles, Cooper was doing laps at 110 miles an hour. With only about 15 miles to go, with a lead of only 13

Times of Those Who Finished at the End of Each 10 Laps

Car	Driver	10	20	30	40	50	60	70	80	90	100	110	120	125
Stuts	Cooper	11:37.1	22:37.8	34:19.5	46:37.5	58:20.6	1:09:58.3	1:21:44.1	1:33:21.7	1:44:58.7	1:56:40.9	2:08:08.1	2:19:42.0	2:25:28.8
Hudson	Mulford	11:29.5	22:53.4	34:18.6	45:47.1	57:21.6	1:08:58.3	1:20:31.8	1:32:00.2	1:43:34.7	1:55:15.0	2:07:55.4	2:20:28.7	2:26:11.5
Delage	Durant	11:36.9	22:51.9	34:17.3	45:46.7	58:18.1	1:10:54.9	1:22:44.7	1:34:34.2	1:46:06.0	1:57:50.1	2:09:18.4	2:20:50.8	2:26:36.4
Duesenberg	Hearne	12:39.2	22:54.1	35:50.7	47:40.4	59:20.4	1:12:17.8	1:24:03.6	1:35:45.5	1:47:16.2	2:58:56.2	2:10:30.9	2:21:51.8	2:27:48.0
Mercer	Haines	11:28.7	24:12.7	35:49.1	47:39.6	59:17.8	1:13:09.8	1:24:47.1	1:36:22.7	1:48:01.3	1:59:35.0	2:11:16.4	2:23:53.3	2:30:56.4
Duesenberg	Henderson	17:49.2	29:40.8	41:24.8	53:14.3	1:05:01.0	1:16:52.9	1:28:46.5	1:40:26.7	1:52:01.2	2:03:37.5	2:15:12.2	2:27:07.4	2:33:07.7
Hudson	Vail	11:26.2	22:52.2	34:17.8	45:39.0	1:03:25.9	1:15:03.8	1:27:24.8	1:38:57.3	1:50:17.9	2:01:39.9	2:12:53.5	2:24:57.4	2:30:03.0
Frontenac	Chevrolet	11:28.3	22:59.0	37:55.3	49:58.2	1:01:50.2	1:14:05.9	1:31:35.3	1:43:29.9	1:55:52.2	2:07:24.5	2:22:51.7	2:34:22.5	2:40:08.9
Mercedes	Fontaine	11:45.9	23:28.5	35:14.6	47:00.2	58:58.9	1:24:37.6	1:36:35.9	1:48:18.9	2:00:07.2	2:11:53.5	2:23:48.9	2:35:44.5	2:42:23.8
Hoskins	Lewis	11:31.3	23:01.4	34:45.2	46:30.8	58:09.2	1:13:01.2	1:24:31.0	1:35:53.3	1:50:19.1	2:01:38.4	2:16:31.2	2:28:37.3	2:35:08.07
Packard	DePalma	11:27.7	23:02.4	34:39.2	46:28.8	58:07.4	1:09:43.7	1:21:25.7	1:33:17.5	2:01:55.9	2:13:34.15	2:25:25.7	2:37:15.5	2:43:08.76

Drivers, Engine Sizes and Equipment of Cars in Chicago Race

Car	Driver	Cyl.	Bore	Stroke	Disp.	Plugs	Carb.	Ignition	Tires	Size	Wheel-base	Oil
Frontenac	Chevrolet	4	3.87	6.37	298	K.L.G.	Miller	Bosch	Goodyear	32x4½	104	Oilsum
Mercedes	Fontaine	4	3.829	6½	299.39	A.C.	Mercedes	Bosch	Goodyear	33x4½-33x5	112	Monogram
De Ag Special	Buane	4	3.826	6½	283	Grossman	Miller	Bosch	Goodyear	33x4½-33x5	112	Monogram
Packard	Defalma	12	2½	4½	299	A.C.	Zenith	Delco	Goodyear	33x4½-33x5	112	Monogram
Stuts	Cooper	4	3.828	6.50	295	Rajah	Miller	Bosch	Goodyear	32x4½	102	Aristo
Mercer	Thomas	4	3.872	6.375	300.7	Rajah	Miller	Bosch	Goodyear	32x4½-33x5	108	Oilsum
Duesenberg	Milton	4	3½	6½	299	A.C. & Rajah	Miller	Bosch	Goodyear	3x24½-34x4½	106½	Oilsum
Duesenberg	Henderson	4	3½	6½	299	A.C. & Rajah	Miller	Bosch	Goodyear	32x4½-34x4½	106½	Oilsum
Hudson	Mulford	6	3.502	5.00	288.6	A.C.	Hudson	Delco	Goodyear	33x5	107½	Oilsum
Duesenberg	Hearne	4	3.75	6.75	298.2	A.C.	Miller	Bosch	Goodyear	32x4½-35x5	106½	Oilsum
Hoskins	Lewis	4	3.75	6.75	298	Rajah	Miller	Bosch	Goodyear	37x4½-33x5	105	Oilsum
Hudson	Vail	6	3.522	5.00	290	A.C.	Hudson	Delco	Goodyear	32x4½-33x5	105½	Oilsum
Delage	DeVigne	4	3.78	6.00	280	A.C.			Goodyear	32x4½-33x5	106	Caster
Newman	Taylor	4	3.812	6.50	295	Rajah	Miller	Bosch	Goodyear	32x4½-33x5	102	Oilsum
Hudson	Fatterson	6	3.502	5.00	288.6	A.C.	Hudson	Delco	Goodyear	32x4½-33x5	105½	Oilsum
Mercer	Haines	4	3.872	6.375	300.7	Rajah	Miller	Bosch	Goodyear	32x4½-33x5	108	Oilsum
Ogren	Henning	4	3.656	7.00	292	Rajah	Miller	Bosch	Silvertown	32x4½	106	Oilsum
Pan American	Alley	4	3½	7	289	Bosch	Miller	Bosch	Goodyear	32x4½-33x5	106	Caster
Frontenac	Boyer	4	3.87	6.37	298	K.L.G.	Miller	Bosch	Goodyear	32x4½	104	Oilsum
Delage	Lecaine	4	3.769	6.00	280	A.C.	Miller	Bosch	Goodyear	32x4½-33x5	106	Caster
Oldfield	Oldfield	4	3.625	7	288.1	A.C.	Miller	Miller	Firestone*	34x4½-35x5	104	Oilsum
Omar	Tott	4	3.75	6.75	298	Rajah	Miller	Bosch	Goodyear	33x5	106	Oilsum
Ogren	Nason	4	3.656	7.00	292	Rajah	Miller	Bosch	Goodrich	33x4½	106	Oilsum
Mercer	Al Schillo	4	3.872	6.375	300.7	Bosch & Rajah	Miller	Bosch	Goodyear	33x5-32x4½		Oilsum
Delage	Durant	4	3.78	6.00	280	A.C.	Miller	Miller & Bosch	Goodyear	33x5		Oilsum
Erbes	Andy Burt	4	3.638	7.125	295		Miller	Bosch	Silvertown	33x4½		Oilsum

*Also used Goodyear

seconds over Cooper, Mulford was forced to come into the pits for tire change. Although he got away in 22 seconds, by exceptionally rapid pit work, Cooper got too much of an advantage. Mulford's stop at the pits was one of the tensest moments of the race, with the grand stand on its feet in a quiver of excitement, and Mulford's pit men working like fiends to let the Hudson driver get away.

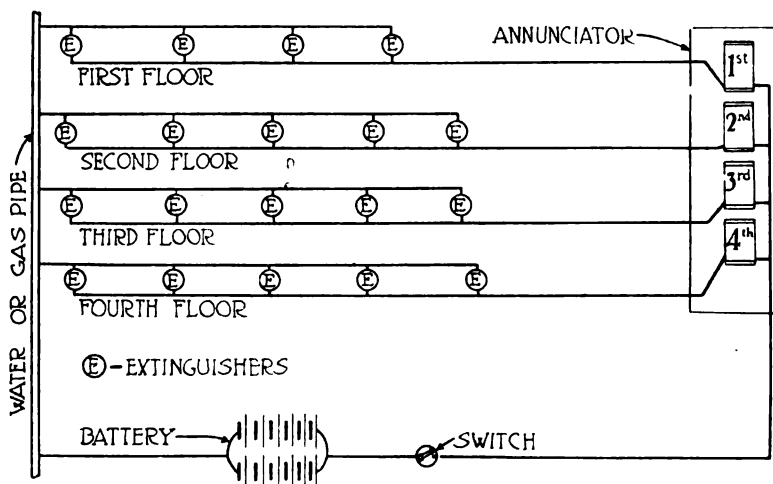
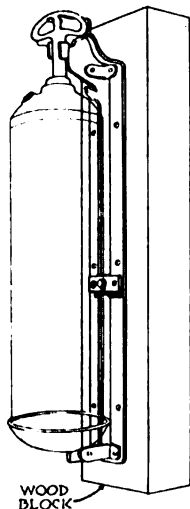
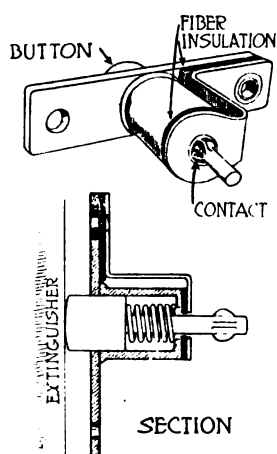
Meanwhile, Cooper continued his uninterrupted course around the track, and at 240 miles had a margin of 46 seconds over the Hudson. Mulford, in trying to catch up was doing laps at 109 miles an hour, and at the finish had cut the gap between Cooper and himself to less than 43 seconds.

There was some talk of protest after the race because Chevrolet was per-

mitted to carry a second mechanic around the track to where Boyer was working on his car, making three in Chevrolet cars. Also, some of the contestants who did not finish in the money, informally protested against Louis Fontaine being permitted to finish after he had pushed his car across the wire to the pits for repairs. It is not believed that these protests will be formally filed.

Removal of Extinguisher Gives Fire Signal

Location of Fire Shown by Annunciator in Office—System Prevents Theft of Extinguishers—Easy to Install



THE Colt-Stratton Co., Cole and Dodge Brothers distributor for New York, has an improved fire alarm system. When any one of the many Pyrene extinguishers is taken from the wall, to fight a fire, an alarm is registered in the main office by an annunciator.

At convenient points throughout the building the extinguishers are mounted on the wall by standard Pyrene wall brackets. In the back of each bracket is a push button—or to be exact, a "pull" button. When the extinguisher is in

place, the button is held out of contact, but the instant it is removed, the button is released, and closes the circuit.

The wiring diagram looks like the wiring diagram of a hotel call bell system, and it is, only the annunciator shows the location of the extinguisher instead of the room number. In the main office is the annunciator, with a numbered indicator for each extinguisher, so that a glance shows which extinguisher has been removed.

Then when the alarm comes in, every

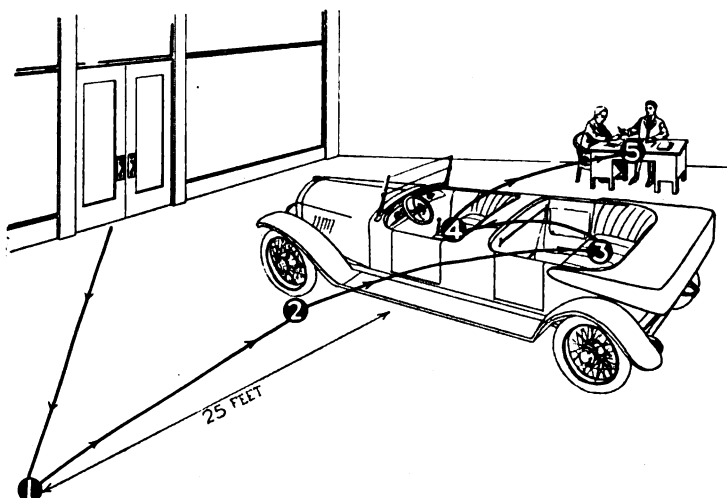
one gets busy at the right place. The employees are drilled, and know exactly what they are to do, and get on the job, or else get out of the way.

Another feature of this system is that it prevents theft of the extinguishers. For should anyone try to slip an extinguisher under his coat he would find himself the center of the entire organization. The system has also put a stop to the employees fooling with the extinguishers. It was designed by William McIlvrid, superintendent.

How to Sell a Car

The Logical Order and a Best Way in Which to Present the Car's Selling Points to the Prospect

By Ray W. Sherman



The course that is followed by the salesman and prospect in the tabulation at the right

"**N**OW," began Tommy Trumbull, talking to the salesmen in their morning meeting, "let's look over our plan for selling the car. Last time we met we took up the question of meeting the man when he comes in the door. Now let's take up the question of how to sell the car to him after we have met him."

"Mr. Reilly and myself have worked quite a bit on a plan that we believe is fairly good, although it may not be one hundred per cent ideal. But we believe it is a lot better than no plan at all, and that's the way we are liable to operate if left to our own devices." Tommy moved several sheets of paper around on his desk.

"This plan could be applied to almost any car, so it is well to get the idea in mind. It isn't exclusively a Sennett idea. You can use it as long as you sell cars."

"We have based it on the fundamental psychologic principle that in presenting anything to a man we must go from the whole to the parts. Thereafter we must take up the parts in the order that best suits our plan. We must then summarize the story and drive home our most telling points. And then we must lead the man to the contract and try to get his money."

"Let us assume that we have greeted our man on the floor, that he has stated he wishes to see the car, and that the car is standing on the floor. In our arrangement of the steps in the plan we have set them down in one, two, three

order, and now let us take them up as I have them on these sheets:

"1—The General Appearance of the Car. In order that the car may be seen to best advantage as a whole have the prospect stand back 20 or 25 feet, depending on size of the car—the bigger the car the farther the distance. Then call his attention to the appearance of the car, directing his eye with your finger as follows:

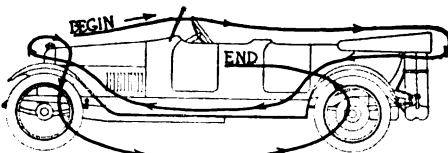
"a—Hood and cowl. Point out lines of hood and cowl and then carry his eye along

"b—Top and side lines. Show him how the top line of the body side runs backward to the

"c—Rear end. Show him how the top, spare tire and general rear end effect is attractive and not a hodge-podge. But don't say 'hodge-podge.' Just call his attention to the 'pleasing effect.' Then point his eye along the

"d—Fenders and runningboard. Point his eye from the rear end along over the rear fender, runningboard and front fender to the

"e—Radiator, if possible. If you can't



1-a to g. This is how the prospect's eye is led over the car from position 1

Steps in the Sale

1—GENERAL APPEARANCE OF THE CAR.

- a—Hood and cowl.
- b—Top and side lines.
- c—Rear end.
- d—Fenders and runningboard.
- e—Radiator, if possible.
- f—Wheels.
- g—Color and finish.

2—FRONT END.

- a—Cylinders, bore, stroke and horsepower.
- b—Number of cylinders and why.
- c—Extra accessories.
- d—Close the hood.

3—TONNEAU.

- a—Roominess.
- b—Robe rail, foot rest and other conveniences and accessories.
- c—Extra seats, if any.
- d—Comfort of the rear seat.
- e—Springs of the car.

4—FRONT SEAT.

- a—Instruments on the cowl.
- b—Windshield.
- c—Driving the car.
 - 1—Gears.
 - 2—Clutch.
 - 3—Foot-brake.
 - 4—Emergency brake.
 - 5—Starter.
 - 6—Steering wheel and leg-room.

5—MAJOR PROBLEMS OF CAR OWNER.

- a—Dealer.
- b—Service.
- c—Factory.
- d—Parts.

6—SUMMARIZE.

- a—Looks.
- b—Comfort.
- c—Economy.
- d—Performance.
- e—Reliability.

7—CLOSING THE SALE.

8—FINISHING THE SALE.

see the front end from where you stand omit this point. Don't disturb the prospect for the sake of this one point. Instead go from Point D to

"f—Wheels. Point out the attractiveness and sturdiness of the wheels or whatever qualities they possess. Wind up with the

"g—Color and finish. Ask him if he doesn't think the color, finish and general appearance make it a mighty attractive car? He'll say, Yes.

"Your story on these points will take less time than it has taken to tell it. You carry your out-stretched arm and pointing finger in what is almost a single, long sweeping gesture and at the end you sort of swing your hand and finger toward the man, look at him with a smile and say: 'Don't you think that's a mighty pretty car, Mr. Prospect?'



3-a. Calling the prospect's attention to the roominess of the tonneau

"You have now driven into the prospect's mind a picture of your car. Had he seen it in his own way he might not have considered it pretty. By this method some people could be made to admit—and believe—that any car is pretty, or at least has some beauty.

"2—Front end. Now take the prospect to the front end of the car and get this part of the story out of the way. Don't talk any more than you have to about this part of the car unless the prospect is technically inclined and seems rather insistent on it. However, take up first the

"a—Cylinders, bore and stroke, and horsepower. Say: 'The motor is a four, the bore is $3\frac{1}{2}$ and the stroke 5. It will give you 27 horsepower. The car will go 60 miles an hour or slower than a walk and will climb any hill.' At this point explain the

"b—Number of cylinders if there are 8 or 12. If only 4 or 6 do not explain, for 4's and 6's are common and everyone thinks he understands them. In explaining the advantage of an 8 or 12, do this: Lay your pencil, which must be flat-sided, on the runningboard or floor, and say: 'With a four you get two pushes of the motor every time the motor makes a revolution, like this:' (Here you push the pencil, let it roll 6 or 8 inches, and nearly stop, then push it again, let it roll the same distance and stop). 'But with this motor you get six pushes of the motor at every revolution and three of them are pushing all the time; it gives continuous power, like this:' (Here you put three fingers against the pencil and push it back at high speed to where it started, then quickly pick it up).

"If an 8, say: '..... you get four pushes and two of them are pushing all the time.'

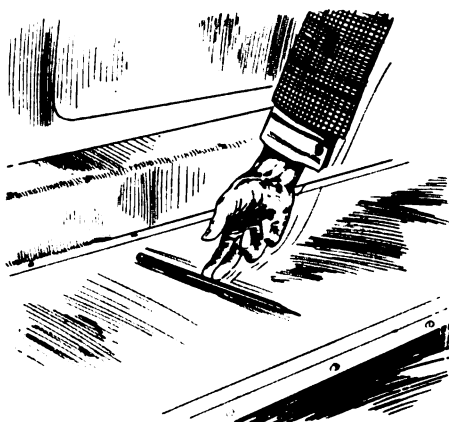
"For this pencil-rolling there should be as hard a surface as possible. It works fine on a desk or tool box where the pencil rattles energetically on the return trip. The pencil rolls best if pushed with the fingernails. Practice this well before trying it on the prospect. Use one finger when illustrating the four, and three when illustrating the twelve, with the eight, use two. Then abruptly leave this technical discussion and show any

"c—Extra accessories. These include tire pumps, etc. Talk of what the accessory does for the car owner—and be brief rather than lengthy. Then

"d—Close the hood and invite the prospect to step to the

3—Tonneau. Again we go from the whole to the parts. Wherefore, we take up first

WHAT is printed in this story is NOT a standardized sales talk in its entirety. It is mostly the logical sequence and method in which to present a car. With this skeleton the sales manager should be able to put into type-written form a standardized selling talk that will do much to increase the efficiency of his sales force. The salesman himself may also work out for his own benefit a "best talk" on the car in case he has no sales manager to do it for him. The whole subject, this week's and last week's stories, should be the subject of a series of sales meetings. It will increase efficiency—and profits.



2-b. Demonstrating the difference in number of cylinders by rolling a pencil

"a—Roominess. With a sweeping gesture call his attention to the room. Then go to the details, taking up the

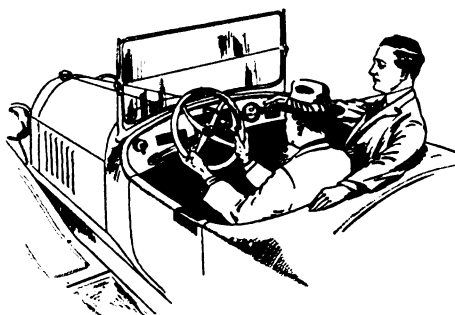
"b—Robe rail, foot rest and other accessories and conveniences. In case there are

"c—Extra seats, show how they operate. Put one up quickly and then close it again. Then call the prospect's attention to the

"d—Comfort of the rear seat, in which he has been sitting for a short time. Press the upholstery, showing its springiness. Touch it, and call attention to its quality. Then test the

"e—Springs of the car. Jounce it the right amount to show how the springs work. And then say: 'Don't you find this very convenient and roomy? And isn't it comfortable?' He can't say anything but Yes.

Now ask him to step into the



4-a. Pointing out the instruments on the cowl



3-c. Jouncing the car to demonstrate its springs. It may be necessary to stand to do this in most cars

"4—Front Seat. Put him behind the wheel and seat yourself beside him. Call his attention to the instruments on the cowl, working them and explaining briefly. Take up all the

"a—Instruments on the cowl, and then explain the operation of the

"b—Windshield. Men have been known to own cars for months and never knew they could cool their feet by adjusting the windshield. And then we get to

"c—Driving. Give the man the sensations of driving. Take up first the

"1—Gears. Put your hand on the lever and say it gives different speeds. Don't try to shift gears and confuse the prospect. Maybe they won't shift easily anyway. Then to the

"2—Clutch. Tell briefly what it is. Then to the

"3—Foot brake. Tell briefly what it is and at the same time mention the

"4—Emergency brake. Tell briefly what it is. Then throw in the

"5—Starter. Let the motor turn over a few times and then throw the starter off. Then turn to the

"6—Steering wheel and leg-room. As the prospect holds the wheel, explain the throttle and spark, say the car is easy to drive, and that you have many women drivers. Point out the leg-room, if there is any.

"Leaving the prospect still holding the wheel, take up what may be termed the car owner's

"5—Major Problems. These are the problems that stay with him through his ownership of the car. They are:

"a—Dealer.

"b—Service.

"c—Factory.

"d—Parts.

"On each of these points lay emphasis. Tell of the reliability of the dealer, the satisfaction of his service, the permanence and record of the company, and the standard parts used in the car; the latter would protect the owner even if the dealer and the factory went out of business.

"6—Summarize. Step out of the car and ask the prospect to do likewise if he doesn't do so without being asked.

"Then ask him to step 'over this way. I wish to show you the service card that goes with every car.' Or, if you have no service card, have something else that will serve as an excuse for his

going to your desk or into a private office. Don't set him ACROSS the desk from you. Have him on the same side, or not more than just around the corner. Having a desk between helps him resist you.

"Then show him the card or whatever it is you brought him in to see. Then summarize your sales story in a few words, laying emphasis on those points that seem to impress him most.

Cover:

"a—Looks.

"b—Comfort.

"c—Economy.

"d—Performance.

"e—Reliability.

"7—Closing the sale. If there are any options, such as wire wheels, say: 'Which would you prefer, Mr. Prospect, wood or wire wheels?' If he answers either way he is sold. Draw out a contract and begin noting down the items. Cover all options first, then get the other data. Then push the contract in front of him and hand the pen or pencil to him just as though you were absolutely sure he would sign. Make a cross on the line and say: 'Sign right here, please.'

"If he hesitates to take the pencil, pull it back and say: 'One moment, please, Mr. Prospect. There's one other point I should mention.' Then explain some point that you can handily bring in, summarize again very briefly, and hand the pencil to him again just as you did before. Don't act hesitatingly yourself. Act as though you were thoroughly master of the situation.

"If he hesitates the second time, go at him this way, frankly and honestly: 'You seem very much pleased with the car, Mr. Prospect. I, myself, am positive you would derive great pleasure and service from it, yet while you have countless reasons why you want it, there evidently is some reason why you hesitate to buy it. Will you please tell me what that reason is?'

"If you can get him to give you the REAL reason 'why not,' you can attack that reason; but don't let him give you a fake reason. If you know he has money and if he says he 'can't afford it,' you can practically laugh him out of that, sell him on that point, and assure him you are sure he can't be giving serious consideration to any such reason as that.

"After being shown up as a faker on one or, at the most, two false 'reasons,' he will give you the REAL reason—and your opportunity—or will flatly refuse to buy. If he flatly refuses—as some men do—that ends the sale for that day, and it can be taken up anew by the regular follow-up.

"But when you have reached the 'handing the pencil' stage, don't let the sale die through shilly-shally tactics. Continue to retain your mastery of the situation right down to the last second. If he admits—as he will in answering your frequent questions—that he likes the car, he ought to buy it, and if, after his admissions, he doesn't buy it, it is up to him to tell you why not. If he tells you a truthful reason, you have a

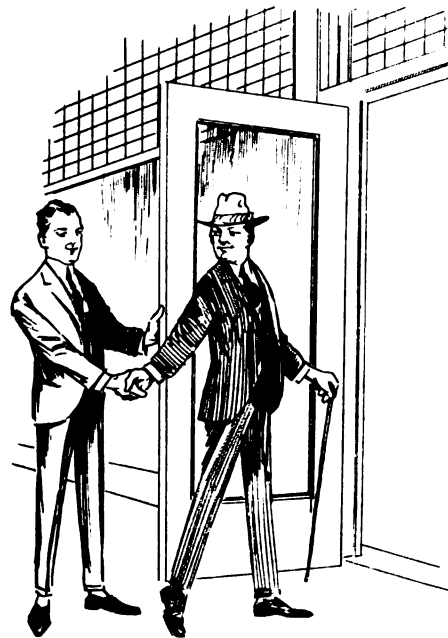


7—Handing the pencil to the prospect

definite path on which to continue your work.

"After he signs the order, he isn't at all surprised when you say: 'And now, Mr. Prospect, if you'll just write a check—'

"When he takes out his book, or says



8—Getting rid of the prospect after the sale is completed

To All Retail Sales Managers

Getting the Prospect's Name. At some point in the story get the prospect's name. If it doesn't come out in any other way, hand him your card, tell him your name, and ask him for his card or name. This should be done somewhere in the story before you get to the talk in the front seat. Do it at the end of the viewing of the body, while "under the hood" or when in the back seat. When you, as a business man, with your chin up, ask another business man for his name, there isn't much he can do except give it to you.

he hasn't it, and you give him a blank check, it is up to him to ask you how much. Then you get the full amount if possible, or only the usual deposit.

"8—Finishing the Sale. After you have the order, don't say any more about the car than you have to. And don't take the rest of the afternoon visiting with the prospect. Get him out of the place as soon as possible without seeming to rush him. If you hang around and talk to him, he may change his mind. You may unsell the car. One of the big points in selling all goods is to 'beat it' after you get the order."

From the Whole to the Parts

AFTER reading this story, note these brief remarks: On the principle of "from the whole to the parts" the prospect is shown first the car as a whole, its lines, its beauty, its finish, and at the end of this step this part of the story is summarized by calling his attention to the color and finish and beauty.

The parts of the car are then the tonneau, front compartment, under the hood and service. In each of these we again go from the whole to the parts, and wind up with the most effective point.

In the tonneau we first draw attention to the whole, which is the roominess, and we wind up with the comfort of the seat, for that is the most telling point about the whole thing, and the one point on which the prospect is having greatest experience.

In the front seat we point first to the whole, which is the general convenience of everything, then go to the various parts, and wind up with the man at the steering wheel, which is the position he is then occupying and which is most effective.

In talking of the motor, which we cover briefly, we tell what it is, mention a few details, and tell him it will do all he can ask of it.

The talk on the dealer, service, factory and parts is really part of the summary, in that it gives added value to a product with which the prospect is supposed to be already favorably impressed.

NEXT WEEK

What the Prospect Thinks When He Comes to You

This story will tell the thoughts that are in the prospect's mind as he comes down the street with the intention of turning in at your door to see your car—and you.

How 9000 Successful Men Size You Up

WHEN Jesse H. White, professor of psychology in the University of Pittsburgh, asked something more than 9000 old, successful business men for the points on which they judged men he drew a wonderful lot of replies. The summary of the replies is the nine points given above, and what they mean was told by Professor White before the Salesmanship Club of New York. No one of the 9000 men gave the whole nine. Most of them gave two or three. That part of Professor White's talk which deals with the nine points follows. He spent 7½ years in gathering the facts. He has been retained by Ford and Westinghouse to lecture to their employees and is well known in the field of psychology.

1—The Kind of Body You Have

You draw your first impression from a man's body, its size, his appearance of good health, of lack of it, his facial appearance, his nationality or race, whether he is dissipated, his age. If a man is of a certain race you know he requires certain treatment. Men can be grouped as young, middle-aged and old, and each group requires a different treatment. To a healthy man you can say: "I always like to meet a man who is in good health," but the man not in good health requires different treatment. The salesman must be versatile enough to appreciate the things a man's body tells and act accordingly.

2—Clothing and Personal Appearance

In dress it is easy to go to extremes. There are two extremes—(a) too much attention to dress, and (b) too little attention to dress. But it does not mean that the man who goes to either extreme is not a first-class man, for there are exceptions. However, a first-class man who goes to either extreme creates a wrong impression of himself, which harms him in his work. He would be a much better man if he were more careful. This fact obtains: The well-dressed person is regarded as having level-headed, common-sense judgment.

When is a man well dressed? He is well dressed when he is dressed as people want him to be, when attention is not attracted from himself to his clothes.

3—The Man's Education

By education is meant "how much a man knows and what he can do with what he knows." It is not solely school education. I know a man who has spent

41 years in school and now he hasn't any job. He is a veritable encyclopædia, but he doesn't know how to use what he knows. Our school information is not given in such a way that a person can take it and use it, and more and more heads of schools are demanding that knowledge be given in such form that it will be of some use. This is the twenty-fifth salesmanship club meeting I have addressed since February, and I have met many old, successful business men, most of whom are not college men, but they know the knacks of their jobs. They have picked it up by hard knocks.

You young men should look up to the older men. They are your greatest source of information. Most of the 9000 men who gave the nine points were men of experience but not of school education. I would rather know 1000 facts and be able to use 900 of them than to know 10,000 and be able to use only 500.

4—Experience

I have separated education and experience. Old men tell me that the young man just out of school needs experience to fit him for his work. The young man just out of school often believes he has reached the end of learning, but as men grow older they learn that a man is never too old to learn.

5—Will Power

The 9000 men had big will power, and it made up for the lack of formal education. Napoleon was only 5 feet 3 inches, but he had big will power. Will power is stick-to-it-iveness, initiative and we should apply it to our own work. The man who starts out in the morning with the idea that he is going to have

9 Points

THERE are nine points on which they lay emphasis when you go to them to sell them something, to ask for a job or to do business with them.

These are the points:

- 1—Your body.
- 2—Your clothes.
- 3—Your education.
- 4—Your experience.
- 5—Your will power.
- 6—Your moods.
- 7—Your chief interest and hobbies.
- 8—Your habits.
- 9—Your wealth and social position.

a poor day, who has no self-confidence, no pluck, might better stay at home. Too many young men think, when they have finished school, that their education will carry them through, that their diploma will make their ways for them. But they must have will power.

6—Moods

I have tried to read every book there is on salesmanship, and every one of them places great value on the smile. The cheerful, optimistic man regards obstacles as something that makes a man grow. The pessimistic man, with the blues, emphasizes the dark side of everything. You should cultivate good moods.

7—Chief Interest and Hobbies

By one's chief interest I mean one's chief business interest. If you are a banker your chief interest is banking. If you are a merchant your chief interest is merchandising and you want to be the best merchant you can be. I am a psychologist and I want to be the best psychologist I can be. Psychology is my chief interest.

A hobby is one's interest aside from business. I have a hobby, and if you get interested in my hobby I become interested in you about in proportion as you become interested in my hobby. This is one means the salesman has for getting attention. If you haven't a hobby, by all means get one. It takes your mind off your work for a period and gives it a rest now and then.

8—Habits

A man can be well sized up from his habits. Habits include the way you hold your head, your hands, your feet, your

poise of body, the way you look at a man. It is generally understood that the man who looks you in the eye has strength of character, but there are exceptions and the salesman should be versatile enough to know the exceptions. The way you shake hands is a habit. Habits are positive or negative, according to whether they work in your favor or against you. Keeping your word is a habit. When you make appointments are you on time? Or are you generally five minutes late?

9—Wealth and Social Position

An important factor is how much you are worth, how much money you have saved, what your social position is, what classes of people you mingle with and how you stand in your community.

The Salesman Should Become Broader Minded

CULTIVATE versatility. Become broader minded. In order to do this there are certain things each salesman can do:

1—Join the salesmanship club. Get out and mingle your ideas with those of others in your profession. The man who becomes narrow minded is the one who stays at home and has no contact with his fellow men.

2—Read. It is an easy matter to compile a list of magazines and books that will help every salesman.

3—Cultivate a hobby. Get something that will take your mind out of the routine thoughts of business once in a while.

4—Observe older men. You will find that they are willing to learn from any one. Do the same.

5—Practise upward steps. If you want to broaden through contact with men, practise getting out among them. If you want to become courteous, practise courtesy. Practise good habits, good moods, practise everything in which you would grow.

Build Right Habits

ONCE a week every man should sit down by himself and ask himself certain things. It is one of the best ways I know for making oneself a better man.

1—Have I any habits that people do not like. If so, I shall get rid of them.

2—Are there any habits I have not and which I should have? If so, let me begin AT ONCE to get them.

3—Have I habits of which I have more? If so, let me begin AT ONCE to acquire more of them.

Courtesy

NO salesman can afford to get angry if he fails to sell. Of all times this is the time not to get angry. He should leave the prospective buyer in a pleasant frame of mind. He even should, if the situation warrants it, tell the prospect not to buy, that is, provided the goods would not be of service to the buyer after he had bought them.

Courtesy is the ability to respect the other person's point of view. No man wants another to sacrifice his point of

How Can I Size Up a Man at First Meeting?

THIS QUESTION WAS ASKED PROFESSOR WHITE BY A SALESMAN

His Answer:

You will not need, generally, such detailed estimate as is given by the use of the nine points I have enumerated. Probably one or two of them will suffice for the estimate possible in the brief time you have.

view. Two men may argue for an hour, or the salesman and prospect may talk for an hour, and still they may disagree, yet if they are courteous each will respect the other's point of view.

Courtesy is the ability to make the other man feel at ease in your presence.

Useless "Short Cuts"

PHRENOLOGY teaches that the mind is made up of 35 chambers, one for memory, one for will power, etc., and that

the bumps on one's head indicate the development of different faculties. It has been learned, however, that when you use, say, will power, you use your whole brain and when you use memory you use the whole brain. And palmistry teaches that the lines of the hand indicate a man's qualities. Horology teaches that the star under which a man was born influences his qualities and his life. All these are only short-cuts to the study of man and mind and are useless.

What Every Salesman Should Know

About

Cooling

THERMOSTATIC water control means the automatic regulation of the cooling water temperature. By means of a thermostatic valve the water circulating system is not in operation until the jacket temperature reaches the desired point. After this it opens and maintains the circulation necessary to keep the water at the desired temperature.

It is a matter of common knowledge that the automobile as a piece of machinery is subject to more widely varying conditions of throttle opening, temperature, inept handling, roads, etc., than any other.

With the same amount of cooling area it must survive the winters of Alaska and the summers of Texas. At the same time there is only a definite range in which the engine operates at or near its maximum efficiency.

It is quite natural, therefore, that inventors should strive to bring out devices which will tend to equalize these extreme conditions and make it possible for the engine to operate efficiently in spite of the widely varying temperature ranges.

This is the reason for the thermostatic water control and the arguments which are used in its favor. The arguments against it are of two kinds. First, it is the claim of some that the added complications of the thermostat, which is stated not to operate satisfactorily in all cases, make it necessary for people to take them out. This merely means that mechanically the device is not satisfactory in the opinion of these people.

On the other hand, there are others

who argue that there are better ways of accomplishing the same means.

There is only one real other method, and that is by putting the control of the water temperature in the hands of the driver. By this means the driver can control the capacity of his cooling system to keep it in accordance with the existing temperature and climatic conditions. These hand-control systems take the form of radiator shutters as a typical instance.

The argument which can be used by the radiator shutter exponent is that should the weather be very cool it is quite possible for him to close off his radiator so that there is no danger of his water freezing. With the thermostat, unless the non-freezing solution has a low enough freezing point, it may freeze in the radiator while the car is running. The thermostat will not prevent this, nor will it help to hold the temperature of the water if the car is left standing in cold weather.

Again speaking on the side of the thermostatic control, it may be argued against the shutter that it is necessary for the driver to watch the thermometer mounted either on his radiator cap or some other point, and that he will have to change the position of the shutter to match each change shown in the thermometer. With the thermostat, on the other hand, after the proper non-freezing solution is used and the thermostat is set at the right temperature and is correct mechanically, the entire operation begins automatically and the driver need not have his cooling system on his mind at all.

Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge, but be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a stamp and your correct name and address.

Causes for Burning Breaker Points

Answering Valmore de Lasalle, 180 Huntington Ave., Providence, R. I.

Make sure that you are using or purchasing genuine Atwater Kent parts. Buy them from a reputable dealer or garageman and beware buying from any one at cut prices. Any parts catalogued at cut prices are not genuine.

With the exception of Hupp 1914 and Scripps-Booth 1915 practically all Atwater Kent Systems are intended for 6-volt storage battery or six dry cells. Where the system is connected to a 12-volt lighting and starting system, a tap should be made for one of the ignition wires between the third and fourth cell so as to obtain 6 volts for ignition purposes. Owing to the negligible current consumed by the System the battery will not be unbalanced in its charge.

Look out for too high a voltage when car is running at high speeds and battery is fully charged—see that the voltage never exceeds $7\frac{1}{2}$ to 8 volts, or double this on a 12-volt ignition system.

See that contact-maker parts are oiled every few weeks—neglect of this causes sluggish action and point trouble. Keep oil off points.

Make sure that all wiring is in good condition and that ignition circuit is free from grounds.

See that none of the parts have been altered in shape and that no springs have been changed in their tension. Each part is built with watch-like precision and its movement is so quick that it is practically invisible. If oiled there is little wear. There are no adjustments provided because none are necessary.

Make sure that your system is properly installed—trace your wiring carefully to the battery, note whether it is subjected to too high a voltage, oil it at intervals of a few weeks and otherwise leave it alone.

Do not suspect the contact points or other parts of the ignition every time the motor misses.

Save Money with an Oil Filler

Answering E. Malcolm Brewer, K-E-B-O Garage, Bar Harbor, Me.

Refuse oil may be filtered and mixed with grease to form a lubricant for gear-boxes and rear axles. It is practically as good as new oil for this purpose.

It may also be used in the engine, but the fact that it has some gasoline in it makes it somewhat undesirable and it is

difficult to remove this gasoline without going to considerable trouble.

A recent letter from the Berks Auto & Garage Co., 514 Cherry St., Reading, Pa., to Motor World on this subject is of interest. "We have used an oil filter since 1910 and the purchase price, as near as we can remember, was \$12.50.

"It has been very satisfactory to us from the time we received it and paid for itself in the first few months, as all oil taken from crankcases which was formerly emptied into the sewer was run through this filter and removed in a perfectly clear condition with the exception of having a darker color.

"This oil we have been using in our own cars as cylinder oil and also as a mixture for transmissions for our customers' cars.

"We cannot see why every repairshop or garage, regardless of size, should not have one on hand and we are sure that it would pay in every instance."

We shall be glad to answer any further questions. We hope you will keep in touch with us regarding the various problems which come up in connection with your business and shall do all we can for you.

Letter for Increasing Livery Trade

Answering Phil Tarshoff, Parkway Taxi Co., Brooklyn, N. Y.

We do not know what facilities you have for turning out form letters, but in case you are going to have any trouble in getting out a letter that you can fill in in neat style, what would you think of having several letters of this kind printed on cards of about the size of an ordinary postal card and mailing these? They certainly would be attractive in appearance and it would be much easier

to get them out. All you would have to do would be to get them printed and mail them. You could send them as postal cards or enclose them in an envelope. The letter may be worded as follows:

Wouldn't you like to have a \$4000 automobile, with a chauffeur, drive up to your door and say: "The car is ready?"

Wouldn't that be the ideal way to go to the theater, or a party, or a wedding, or for a drive on Saturday or Sunday afternoon?

By using our motor cars you can have this service for less than it would cost you to own your own car.

Few people realize that using a livery car on those occasions when you want it is much less expensive than buying a car, garaging it and paying its running expenses. In addition, you have with our cars a good chauffeur who is always at your service in every way.

You will be surprised to learn how economical the arrangement is. There are special rates for different occasions and there are advantages which cannot be told in a short letter like this. Our limousines, Pierce-Arrows and Hudsons are among the best cars on the boulevard.

Just 'phone us and ask how well we can serve you.

Get a Good Salesman

Editor Motor World: I am the Maxwell agent in this vicinity and am contemplating taking on the agency for some good six cylinder car. As I have only one assistant, my mechanic who works on a commission basis, I am at a loss to know how to run the car selling end of the business. My time since buying out the business one month ago has been so occupied in planning and straightening out the business, I have had very little time for mixing with my customers and trying to sell cars.

I have strong competition from a dealer in a near-by town in selling cars; this dealer also runs a first class garage and gets a good deal of the business that belongs here. Any suggestion enabling me to compete successfully will be appreciated.

I have a considerable quantity of old pieces of cars, such as axles, hubs, differential gear drives, etc., piled in a heap at the rear of my shop. Is there any way to realize on it other than selling it for

AGENCY FOR OLDSMOBILE MOTOR CARS
RACINE AND GOODYEAR TIRES

H. P. PAYNE & SON
MOTOR LIVERY—GENERAL TRUCKING
GARAGE

TELEPHONE 158 QUOGUE

QUOGUE, N. Y.

Neat business
card designed
for H. P. Payne
& Son, Quogue,
N. Y.

junk? If not, will you kindly name some good junk dealer?—Subscriber.

Answer—You should employ a salesman and be sure to get a good one. You have a splendid opportunity to expand in every direction. The fact that you have only one repairman shows that there is a good opportunity for building up a large and profitable repair business. There is business to be obtained for the garage; there are accessories to be sold, and incidentally we believe you will find it advisable to put a man on this end of the work and have him work hard just the same as he would if he were selling cars. You realize that an owner spends from one-third to one-half the price of his car every year buying accessories and supplies. This business is worth going after.

You might sell these old cars to some of the companies which tear old cars up and sell the parts.

Cause of Foaming Battery

Answering *Alls & Pierson, Aspermont, Tex.*

We very often find that in small towns throughout the country where garages make repairs on storage batteries that they use untreated wool separators and in such cases the separators are impregnated with acetic acid. Its effect in combination with sulphuric acid will cause some to foam and utterly destroy the positive elements of the battery; it will look as though someone had spilled milk into the battery.

There are a great many other foreign substances that act likewise, such as impure water with salts or minerals in it which will turn the acid to chlorine. Alkali has the same effect.

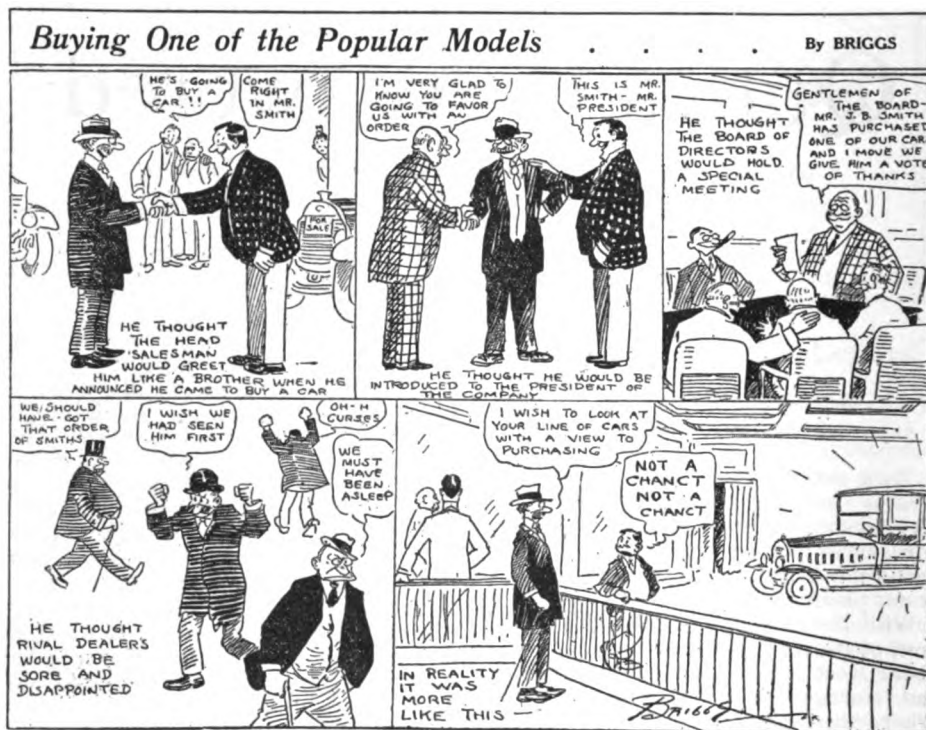
We believe this particular cause to be due to some one of the above mentioned foreign substances having been put in the battery.

There is one other condition, but lacking the facts of this particular battery, we cannot give you a definite reply. This refers to a 12-volt battery upon 1915-1916 cars with a Simms-Huff starting equipment. This one is a small 35 amp.-hour battery with 12-volt starter current but 6-volt lighting current. Sometimes this particular electrical equipment sticks or freezes and allows the entire charging rate of the whole generator to go through just three cells and then three cells of the battery will receive twice the normal charging rate. Boiling or foaming would result.

How to Connect an Ammeter

Answering *Berhow & Olson, Huxley, Iowa.*

An ammeter is always connected in series. Since you desire to measure the current which is flowing to or from the battery, it must be placed in one of the main wires running from the generator to the battery. The wire is simply cut in two at any convenient point and the ammeter inserted. In actual practice, however, you would probably mount the ammeter on the cowl board, and consequently it might be necessary to add a length of wire.



—N. Y. Tribune

Thus, you see, as far as the lighting circuit is concerned, the ammeter may be placed at any point. There is a single exception to this rule, however. Inasmuch as the starting current may be 100 amp. or more, the ordinary ammeter would be ruined by allowing this current to flow through it. Consequently, the ammeter must be connected to flow into the circuit in such a way that the starting current will not flow through it. In other words, do not make the mistake of connecting the ammeter into this circuit.

If an engine runs after the switch is thrown off, there is something defective about the switch or else there is a sufficient carbon in the engine to cause pre-ignition. Move one spark plug terminal and note whether a spark is furnished after the engine is switched off. If this is the case, then the trouble must be in the switch or in the wiring, and if you go over it very carefully, you should have no difficulty in finding out just where the defect is.

Whether the car can be operated when the storage battery is removed, depends on the system; but a sure method to use in all cases is to tie the brushes away from the commutator, thus effectually breaking the circuit.

In case it is necessary to operate a car with only a battery ignition system with the storage battery removed, you can supply sufficient current for ignition by using five or six dry cells in series. These may be connected to the regular storage battery leads.

Dodge Clutch Adjustment

Answering *L. L. Langerak, Pella, Iowa.*

With a cone clutch, leather faced, slipping may be caused by a weak spring, worn or uneven surfaces, or oil or grease on the facing.

The first trouble may be cured by adjusting, which is done by removing the clutch cover-plate and turning the clutch spring adjusting nut with a long screw driver or drift pin and a hammer. The screw driver is placed directly back of the clutch fork.

This nut is split and held by a lock-nut, but it is not necessary to loosen it in order to adjust the clutch. The clutch adjusting nut is held against turning by the pressure of the clutch spring and the lock-nut is merely an adjustment on the split nut to provide for taking up the wear in the threads.

To clean the leather, put in 5 pt. of gasoline or kerosene after plugging up the drain hole in the bottom of the housing. Work the clutch in and out until it is thoroughly cleaned, then drain out the kerosene and apply castor oil or neatsfoot oil with a feather.

There is a slight difference in the action of castor and neatsfoot oil. As a rule, castor oil is preferable when the clutch grabs and neatsfoot oil when it slips, although if one oil will not remedy the clutch trouble, whatever it is, the other oil should be tried. If the clutch grabs, decrease tension of the spring or clean the leather and apply castor oil or both.

If too much oil is applied to the facing or if trouble is experienced in stopping the slipping, apply fuller's earth or pulverized rosin; the latter, however, is particularly for the disk type. A grabbing disk clutch may be cured by using a small amount of neatsfoot oil.

After cleaning the clutch with kerosene or gasoline, it is extremely important to thoroughly lubricate the throw-out bearing.

To remove the clutch it is necessary to take off the gear-box, which is done by unbolting.

SCIENTIFIC CONSTRUCTION

GARAGES □ □ □ SHOWROOMS □ □ □ REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

By Harold F. Blanchard

Second Story Better Than Basement

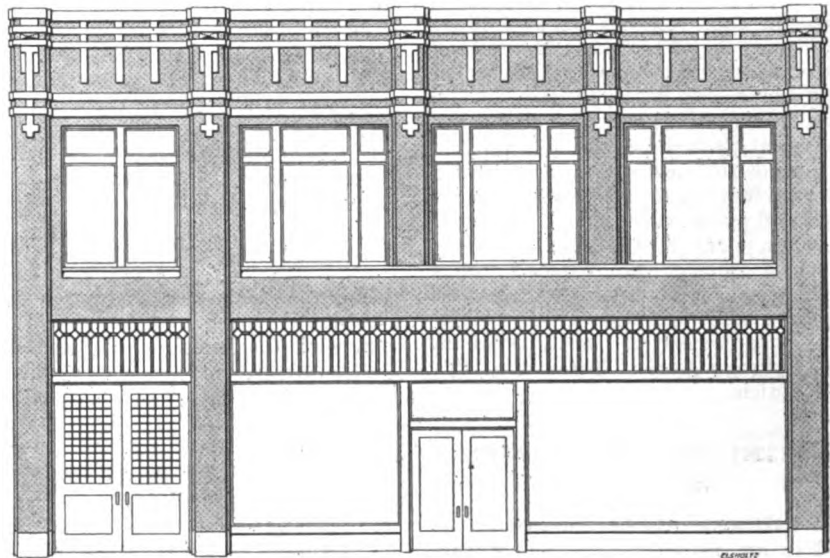
Answering William Elsholtz, Hawley, Minn.

WE have drawn a two-story and basement building, although we do not advise the use of a basement because it costs about the same as it would to erect a second story, and a basement floor is not nearly as desirable as an upper story because it is dark and sometimes damp, as well. It is much easier, ordinarily, to rent space above ground than it is below ground.

You can use brick reinforced concrete, concrete blocks, or hollow tile.

Provision has been made for a small accessory store adjacent to the showroom. You should stop and realize that every motorist spends several hundred dollars a year on accessories and supplies. The fact that each sale is small may make it hard for you to appreciate the magnitude of the total. The sale of accessories should receive the same attention and the same energy should be put into this end of the business as is put into car sales, and incidentally, there are some dealers who are making more by selling accessories than by selling cars.

The front entrance to the main floor is over the elevator and is not ordinarily



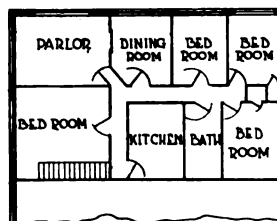
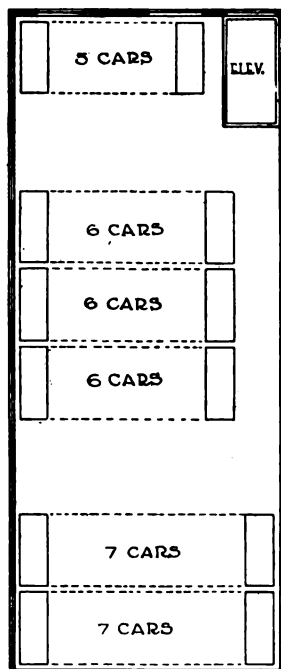
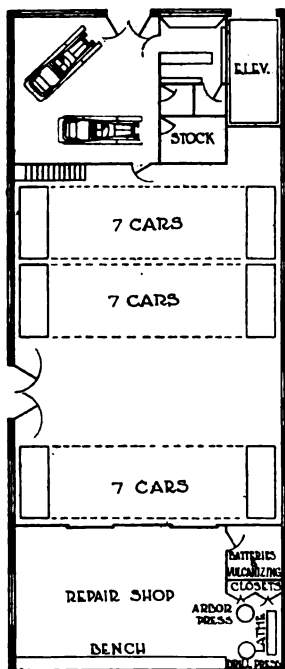
Front, which may be constructed of brick, concrete or terra cotta

used. The main entrance is at the side.

You may object to storing two rows of cars one side of a central aisle and one row on the other, but this arrangement is used successfully in many of the best garages in the country and has the advantage that more cars may be stored in a given space than if the ordinary

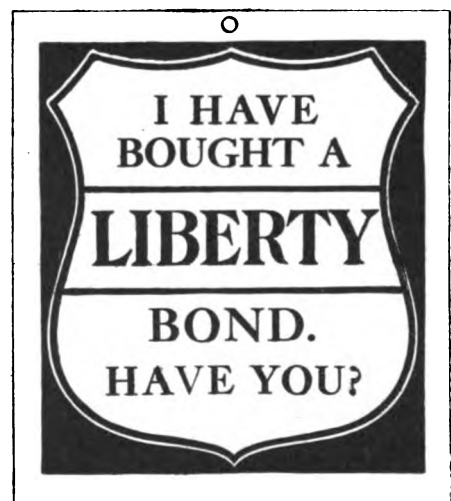
arrangement of one row of cars each side of the aisle is used.

The arrangement selected for car storage in the basement enables 36 cars to be put in place as compared with the standard arrangement, a row of cars each side of a central aisle, in which case about 30 cars could be stored.



Left—One-story and basement building with apartment on second floor. Entrance to the first floor is over the elevator. Entrance to the apartment is by a stairway at the side of the building

THE Liberty Motor Car Co., Detroit, is promoting the sale of Liberty bonds by means of "reminder" cards. The cards are of two sizes, each having a different message and each intended to be displayed in a different place. The larger of the cards is for store windows and contains the words: "We Have Bought Liberty Bonds. Have You?" The smaller size is designed for a place on the individual's desk, and its message reads: "I Have Bought a Liberty Bond. Have You?"



Repairshop Shortcuts

From The Motor World Roadman

(No. 1225) BALANCING ROLLERS

Perfect balance is essential to smooth running in fast rotating parts. Static balance may be determined by resting the part on two frictionless rollers which permit the heavy part to come to the bottom so that the material may be removed until perfect balance is obtained. The device for testing static balance comprises four sheet steel roller plates mounted on pivot bearings held in a steel framework. One of the pair of rollers so formed should be fastened to a wooden base by thumbscrews so that the rollers may be adjusted to accommodate any length of shaft.—William Brenner, Paige-Detroit Motor Car Co., Detroit, Mich.

(No. 1226) REAR AXLE SPEED WRENCH

Rear axle nuts may be removed or replaced in an instant by the aid of this speed wrench. The feature of the wrench is the pin in the center of the handle, which serves as a crank handle, and is used as long as the nut turns easily. The regular handle is used to start or tighten the nut.—Universal Motor Co., Ford Service, Omaha.

(No. 1227) QUICK ACTING JACK

This quick acting jack picks both front or both rear wheels up from the floor at the same time with little effort. These uprights are caught beneath the axle, which serves as a brace, permitting the jack to be rolled beneath the car. With the exception of the wheels, the construction is steel throughout.—Petit Garage, Ford dealer, Port Huron, Mich.

(No. 1228) ARMATURE TESTING STAND

This is an adjustable stand used in testing open or short circuits in an armature after it has been removed. It consists of two wooden rests notched to hold the armature shaft. One rest is adjustable and may be locked in any position, so that practically any armature may be accommodated. Attached to the binding posts on the sliding rest are two copper wire brushes, so bent that they rest on opposite sides of the commutator. In making a test, a single dry cell is attached to these binding posts. Leads are then taken from the telephone receiver and placed in rotation on adjacent bearings of the commutator, and the commutator slowly rotated. Ab-

sence of a buzzing sound indicates a short circuit; a large buzz indicates an open circuit. A three-scale voltmeter could be used in a similar manner instead of the receiver. In the absence of a lathe, these rests may be used as a support in refinishing the commutator surface, drive being effected through a belt placed over the armature winding.—Gordon Reim, U. S. Light Service Station, Detroit, Mich.

(No. 1229) HOSE CLAMP TOOL

This tool facilitates the attachment of wire hose clamps. It is an old valve tool, with the jaws cut off, and drilled for the insertion of the hose clamp wire. The advantage of the tool is that it permits the wire to be pulled tight and then quickly twisted without danger of breaking.—Bert Borden, Harry A. Scott Co., Kalamazoo, Mich.

(No. 1230) CHAIN TOOL

Removal or replacement of the lock link of motor chains is facilitated by the use of a tool that will hold the chain together while doing the work. Such a tool comprises two steel hooks that may be caught into the links at each side of the lock link and contracted by a thumbscrew and bolt. The steel jaws should be case-hardened to insure durability.—Reo Garage, Kalamazoo, Mich.

(No. 1231) PROTECTED Mallet

In straightening sheet metal parts a heavy, tempered blow is required. That struck by a wooden mallet has the right quality, but is liable to injure the finish. By fastening a thick piece of leather over the head of the mallet the force of the blow is softened, so that minor dents may be removed without injury

to the paint.—N. J. Bauman, Cadillac Motor Car Co., Kalamazoo, Mich.

(No. 1232) CARBURETER FLOAT LEVEL GAGE

In each type of carbureter the level of the gasoline in the float bowl should come to rest at a certain distance from the machined top of the bowl, this distance depending upon the particular carbureter in question. For most carbureters, a gage may be made that will facilitate the float level setting. A gage for a 1913 Cadillac comprises a straight edged wooden block having two nails driven into one face. One nail is cut off 23/64 in. above the wood, the other 21/64 in. By placing this across the top of the bowl to be tested the gasoline will come to rest part way between the two ends of the nails when the level is right.—H. J. Sherlitz, Cadillac Motor Car Co., Kalamazoo, Mich.

(No. 1233) LAMP STRAIGHTENING ANVIL

Parabolic-shaped lamps may be quickly straightened by forcing them over a solid cast iron anvil that exactly conforms to the interior of the original lamp. An anvil or form of this nature is not practicable for single jobs, but in service station work, where many similar lamps are straightened, the repair work is greatly facilitated.—Fulton Specialty Co., Detroit, Mich.

(No. 1234) WASH RACK PIPING

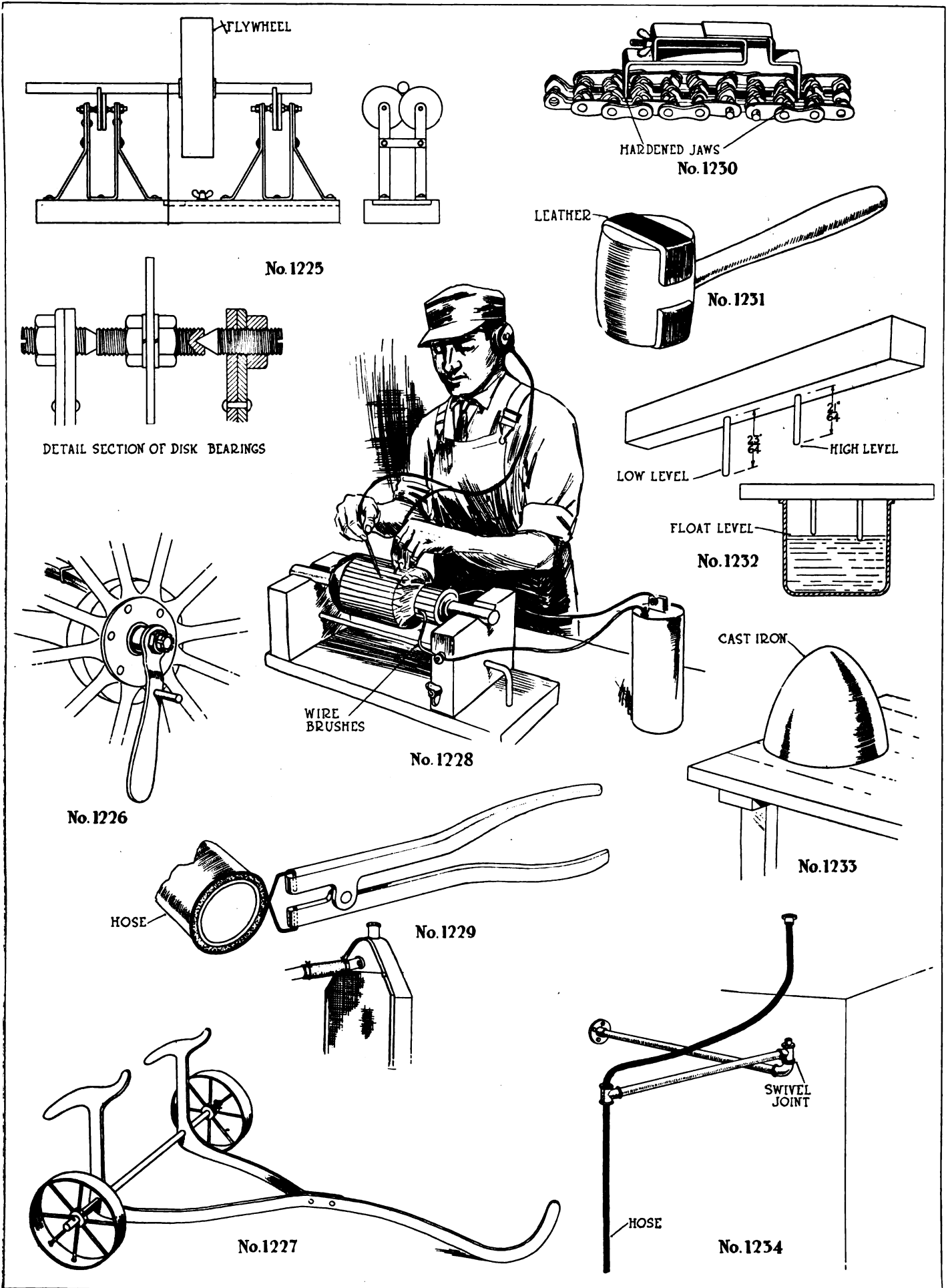
Simplicity is the feature of this wash rack piping. A fixed horizontal pipe arm carries a swinging pipe arm by means of an elbow, upright and T-connection, the hose passing through the T.—Bert Borden, Harry A. Scott Co., Kalamazoo, Mich.

Don't Forget Next Winter

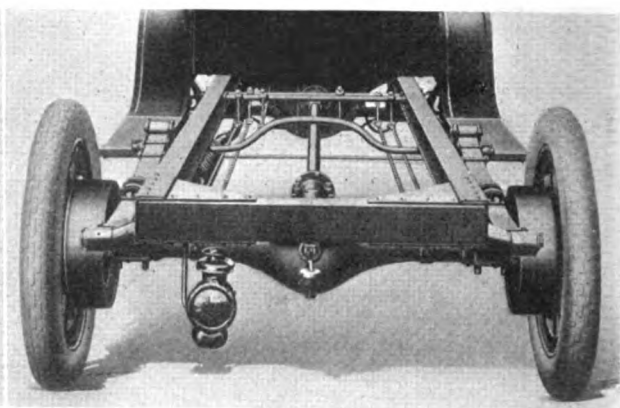
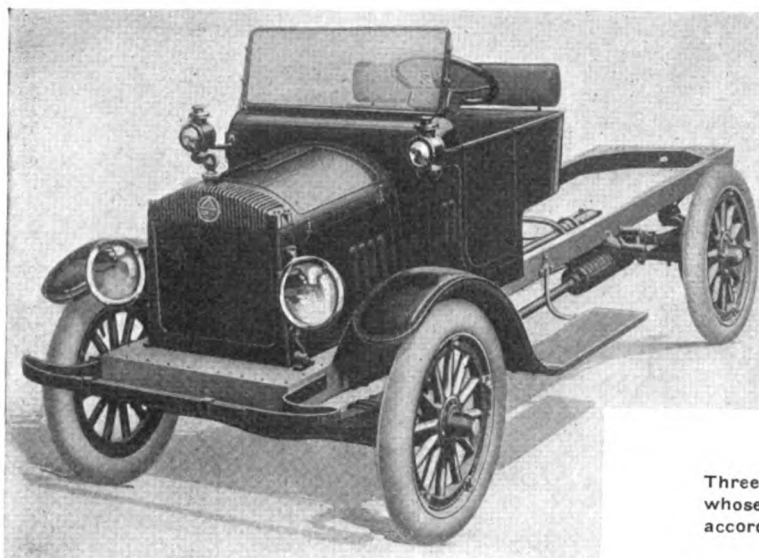
EVEN though summer is here with its rush of business, don't forget that summer ends soon and winter will be with us with its slow-up of business.

In a notebook, a folder or a drawer of your desk open a Winter Business idea file. Set down everything that comes to your mind between now and September. Then use these ideas to carry you over the crest of the wave next winter.

Also, in a short time MOTOR WORLD will ask its readers for Winter Business ideas and we'll be glad to have yours. Our readers helped us wonderfully with last fall's Winter Business Number and we want to make this next Winter Business Number the biggest thing ever.



Standard Parts in Higrade Truck



Three-quarter front and rear views of the new Higrade truck, whose capacity is rated at between 1500 and 1750 pounds, according to the tire equipment. Note the control box on the steering column beneath the wheel

DESIGNED with the end in view of producing a high-class truck made from truck rather than passenger car parts, the new Higrade commercial vehicle offered by the Higrade Motors Co., Grand Rapids, Mich., is rated at between 1500 and 1750 lb. capacity when fitted with standard equipment. This consists of 34 x 4½ pneumatics, front and rear. By the use of oversized tires, 35 x 5, which will fit the rims furnished with the truck, its capacity may be increased 25 per cent without overloading the springs.

The Higrade company is headed by J. Elmer Pratt, who has been connected with the motor vehicle industry since 1893 and who was identified with the Pierce-Arrow Motor Car Co., Buffalo, N. Y., for 7½ years. The company is at present erecting a factory in Grand Rapids, and expects to start active production early in July. The first 1000 vehicles will be made at the experimental shops of the company at Harbor Springs, Mich., where it has a plant capable of a five-vehicle-per-day capacity.

Truck Made of Standard Parts

The truck is assembled mostly of standard parts; has its motor under a hood forward of the dash, final worm drive, and is equipped with electric starting and lighting.

One of the features of the vehicle is a specially designed lamp bracket attached to the side of the radiator casing so that the electric headlight may be adjusted for the proper focusing of the rays at any given distance ahead. It is not necessary to dim the lights when passing other vehicles on the road, and the adjustment once made will always stay in place.

This is accomplished by mounting the headlight casing on a vertical bar pivoted at its lower end to the radiator casing

HIGRADE SPECIFICATIONS

Capacity, lb.	1500-1750
Price	
Wheelbase, in.	115
Tires, front	34x4½
Tires, rear.	34x4½
Bore, in.	3¼
Stroke, in.	5
N. A. C. C. hp.	16.92
Speed, r.p.m.	1,000
Speed, m.p.h.	20
Gear-ratio in high gear.	4.56-1
Final drive	Worm

and working in a slotted bracket at its upper end, so that the entire lamp may be swung forward or backward about the bottom pivot to give the desired focusing effect.

The Wisconsin engine is mounted under a conventional hood forward of the dash, and has incorporated with it a dry-plate clutch and three-speed, individual-clutch type gearset. The cylinders are cast in block with the upper half of the crankcase. The valves are all located on one side of the engine and are driven by a single camshaft. The intake and exhaust valves are interchangeable.

Cooling by Centrifugal Pump

Cooling is by centrifugal pump employing a cast aluminum case Fedders radiator and having a cellular core. The carburetor is a Zenith fixed-nozzle type, bolted direct to the cylinder block intakes and provided with a shut-off to facilitate starting in cold weather. It is controlled by a hand lever mounted on a small control box attached to the steering column directly under the driver's handwheel. The carburetor is fed by gravity from a pressed-steel fuel tank mounted on the dash. The engine is fitted with a Sim-

plex governor, driven off the propeller shaft and limiting the maximum speed of the truck in high to 20 m.p.h. A high-tension magneto is used for ignition and a separate lighting generator is provided for the electrical equipment, which also includes a starting unit with Bendix drive.

From the engine the power is transmitted to a Borg & Beck single-plate clutch and thence to a Cotta three-speed selective gearset of the individual clutch type. It is then transmitted to the Sheldon worm-driven rear axle through a single shaft with a universal on each end. The rear springs, which are the semi-elliptic type, are arranged to take both the driving torque and propulsion.

The brakes are both on the rear wheels and are of the internal-expanding type. The frame is of pressed steel of channel section, 4 in. deep, with horizontal members 2½ in. wide. It is made of 3/16-in. stock and is built up on the flexible plan of construction without cross members except at the extreme front and rear.

Artillery Type Wooden Wheels

The wheels are wood and are made up in the artillery type with twelve spokes each. The spokes are mounted centrally in the felloe. The steering gear is a Lavine truck design of the semi-irreversible worm type. In addition, a control box is mounted directly in front of the steering column and just in below the steering wheel. This box has all the switches and controls for the electrical instruments, the speedometer and the carburetor adjustment.

The standard equipment includes a speedometer, moto-meter, headlights, windshield, dash and rear oil lamps, electric horn, tool box and tools, extra rim and tire-holder, oil can and 1 gallon of

oil. The cab is inclosed with fore doors and is furnished with a full-width upholstered seat and backrest. The frame length back of the driver's seat is 104 in. and the bed floor for the body is but 31 in. from the ground.

Buy 6010 Cars in Five Months

LOS ANGELES, June 16—Motorists of Los Angeles, in the first five months of the current year ending May 31, purchased 6010 new cars. In Los Angeles, outside of the city, there are now owned 25,040 cars. This number, added to the 49,731 owned by city residents, makes 76,771 cars, or as many as there were in the entire State of California 5 years ago. Motor car possession in the city is divided among 38,070 owners.

Many dealers still are behind in deliveries, and had it not been for freight difficulties there is reason to believe the registration would have been heavier. One distributor here has under charter a train of thirty flat cars that is kept traveling between the factory and this city.

Trade appears to be coming back strong following the temporary lull in April. All dealers are now predicting two things as certain, (1) shortage in cars, and (2) higher prices. Freight conditions will cause the shortage. Los Angeles is so far removed from the factories that it is hard to get box cars for automobile shipment.

Airplane Plant Organization Complete

GRAND RAPIDS, MICH., June 16—The Michigan Aircraft Co., which was formed here several months ago, as was told in a past issue of Motor World, has completed its plant and will shortly embark on the production of airplane engines. E. J. Clark is president and treasurer of the company; Bert Kenyon is secretary, and R. F. Seyferth is assistant secretary and treasurer. Anthony Stadman, one of the pioneers in the American airplane industry, is the chief engineer. The company will build two types of machines, including the Curtiss standard 8-cylinder, 100-hp. type for military machines and for flying boats.

Canadian Branch Plants Increasing

Factory Across Border for Assembling and Light Manufacturing Cuts Out Customs Tax

DETROIT, June 16—The establishment of branch motor car factories in Canada, which has been a common move during the past 12 months, is regarded in many quarters as a wise procedure, and as one large manufacturer states, "Is very good business at this time."

The majority of those concerns who have built Canadian branches, have been actuated by the desire to escape duty taxes. Erection and maintenance of a branch factory in Canada, where considerable assembly and some manufacturing is done, is a means of eliminating and avoiding the usual customs taxes, and allows the maker to sell his product in Canada at the same price as in the United States.

Another stimulant to the Canadian branch building activities was the possibility of a preferential customs tax arranged between Canada and the various English Allies, after the war, which many makers foresaw and sought to avoid with their Canadian branches. They feared a discrimination against the United States which would close foreign fields to American-made cars.

This, however, is now regarded by the majority of manufacturers as a past possibility, one that might have occurred if the United States had not entered the war, but will surely not happen since we joined the Allies. But there are still some who believe that the possibility of a discriminating preferential customs tax still remains, and these men state that it is "good business" to erect a Canadian factory branch because it not only exempts the products of that factory from the customs but also places the American maker in a position of safety if Canada receives the benefit of a preferential customs, following the war.

All of the companies operating Canadian branches do both assembly and

manufacturing, and have installed machinery capable of turning out complete products. The various motor car makers are manufacturing cars exactly like those made in the United States factories, and sell them at the regular United States prices.

There is a labor shortage in Canada at present, caused by the war conditions, and many of the plants have installed women workers, who are surprising their employers by the efficient work performed both in offices and machine shops. Many of the American makers have exported American workers to the Canadian branches to complete their working organizations.

Among the motor car and parts makers who have erected or are erecting Canadian plants are the Ford Motor Co., Ford, Ont.; Willys-Overland Co., West Toronto; Maxwell Motor Co., Windsor, Ont.; Studebaker Corp., Windsor, Ont.; Chevrolet Motor Co., Oshawa, Ont.; Crow Motor Co., London, Ont.; Chalmers Motor Co., Walkerville, Ont.; Saxon Motor Co., Windsor, Ont.; Dodge Brothers, Windsor, Ont.; Harroun Motors Corp., Windsor, Ont.; Signal Motor Truck Co., Toronto, Ont.; Fisher Body Corp., Walkerville, Ont.; Champion Spark Plug Co., Windsor, Ont.; Detroit Weather Proof Body Co., Toronto; Kelsey Wheel Co., Toronto; S. K. F. Ball Bearing Co., Toronto, Ont.; Goodyear Tire & Rubber Co., East Toronto; Marathon Tire & Rubber Co., St. Catharines, Ont.; Acme Tire & Rubber Co., Toronto, Ont.

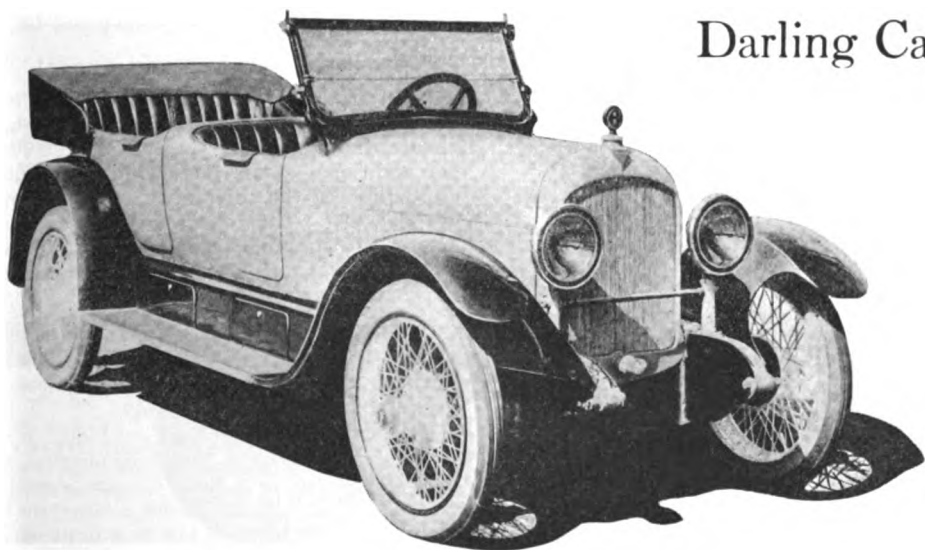
Lane Making New Truck

KALAMAZOO, MICH., June 12—The Lane Truck Co., of this city, is manufacturing a 3½-ton truck, selling at \$3,000. The company will also engage in the manufacture of a 1½-ton truck in the near future.

Another New Truck Company

ST. JOHNS, MICH., June 12—The Triangle Motor Truck Co. has been formed with a capital of \$50,000, and will manufacture motor trucks in this city.

Darling Car to Sell Under \$2,000



THE Darling car, to be made in Dayton, Ohio, in the old Wright-Martin plant, will have one chassis with several bodies. The illustration shows the first body model. The price is not yet fixed, but will be under \$2,000.

The chassis is made up of standard units, such as Continental engine, Borg & Beck clutch, and Timken axles. It is to be equipped with Kellogg tire pump, Boyce Moto-Meter and similar refinements.

It is stated that the straight-line effect seen in the photograph is carried through the other body styles as well, and that all the different models will fit the 130-in. wheelbase chassis. The maker is the Darling Motor Co., Dayton, Ohio.

New Stewart 2-Ton Truck at \$1975

*Only Nine Grease Cups
Used—Design Is
Conventional*

THE Stewart Motor Corp., Buffalo, N. Y., has brought out a 2-ton chassis styled Model 7. It sells for \$1,975 in lead and \$20 extra if painted. The company has followed a policy of building a single light delivery model, but this year the range of models has been expanded, until there are now four—of 1500-lb., 1-ton, 1½-ton and 2-ton capacities.

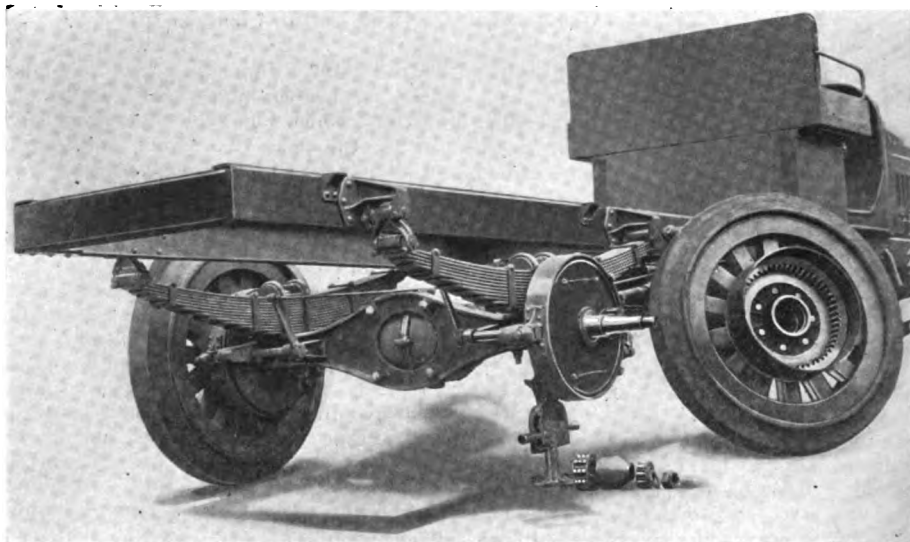
The design of the 2-ton truck follows conservative lines, but possesses some features which are distinctive. One of these is the reduction of grease cups to nine on account of the wide use of oil-less bearings. The latter are employed throughout in the springs, spring shackles, brake countershafts and wherever else possible. This is the Nigrum bearing, made by the Bound Brook Oil-less Bearing Co.

The truck is assembled from standard units, the engine being a Buda OU model, 4½ x 5½, which is an L-head four. It has Berling magneto ignition, and the carbureter is 1¼-in. Zenith, equipped with an engine-driven governor. The radiator is an armored tubular type, with a false front, having cast top, bottom and side members.

The engine, clutch and gearbox are mounted as a unit power plant, the drive being taken through a ten-plate Fuller clutch to a three-speed selective gearbox, in which the shafts are carried on double-row annular bearings. The gears are nickel steel and the shafts chrome-nickel steel.

From the gearbox the drive is taken through a three-joint tubular driveshaft with a center-joint support mounted on a cross member and supported by self-aligning ball bearings. The rear axle is a Celfor internal-gear driven unit. The load carrying member, or dead rear axle, is set behind the live axle. The total reduction provided is 9 to 1.

One of the features is the straight,



Rear of Stewart 2-ton truck chassis, giving an idea of the substantial construction characterizing the vehicle. Note internal gear drive

parallel frame members, which are 32 in. outside to outside. This dimension is a standard on the entire Stewart line. The side members of course vary in dimensions according to the capacities of the trucks. The 2-ton frame is 5½ in. deep, 2½ in. wide, and made from ¼-in. stock. There is a removable cross member at the front end, and the corner points are heavily gusseted with 7/16-in. rivets. The front axle is a drop-forged I-beam with 1¼-in. spindles provided with Bower roller bearings.

Both the drive and torque are taken through the springs. These are bushed with oil-less bearings and are 54 in. long and 3 in. wide. The front springs are 41 in. long and 2½ in. wide. The wheels are 34-in. wood, having semi-round spokes, the front wheels having fourteen spokes 2 in. in diameter and the rear fourteen spokes 2½ in. in diameter. The tire equipment is 34 x 4, Swinehart pressed-on front, and 34 x 7 in. rear. At an extra cost of \$25 4-in. dual rears are provided.

This chassis is suitable for 10, 11 or

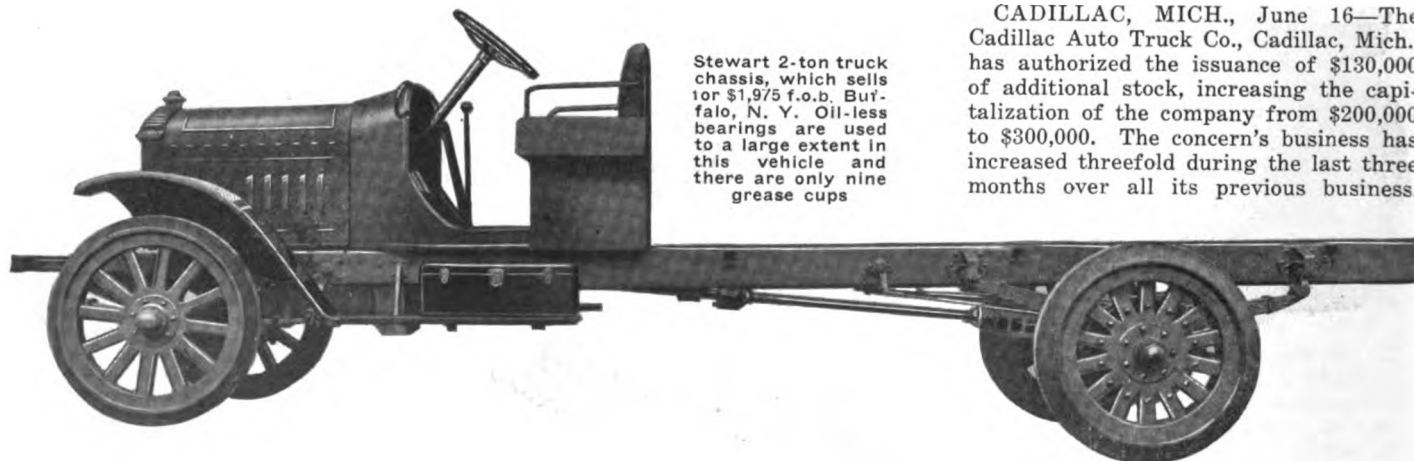
12-ft. bodies, the wheelbase being 156 in. It is completely equipped with front bumper, two side and one rear oil lamps, tool kit, tool box on runningboard, mechanical horn, driver's seat, 16-gal. gasoline tank and pressed-steel fenders.

In view of the extensive use of the oil-less bearings, it is interesting to note where it has been found necessary to use grease cups. Two are on the rear axle on the outer spur gear shaft bearings, two on the rear axle brake shafts for the control brakes, two on the pedal lever shaft on the transmission bell housing, two on the front axle king pins, and one on the center joint of the drive-shaft to take care of the self-aligning ball bearing on which this is carried.

Another feature is the use of a muffler, which is not bolted or riveted in any of its parts, but is entirely electrically welded. This is a product of the Buffalo Pressed Steel Co. The road clearance of the truck is 12 in. in the rear and 10 in. in the front.

Cadillac Truck Increases Capital

CADILLAC, MICH., June 16—The Cadillac Auto Truck Co., Cadillac, Mich., has authorized the issuance of \$130,000 of additional stock, increasing the capitalization of the company from \$200,000 to \$300,000. The concern's business has increased threefold during the last three months over all its previous business.



Stewart 2-ton truck chassis, which sells for \$1,975 f.o.b. Buffalo, N. Y. Oil-less bearings are used to a large extent in this vehicle and there are only nine grease cups

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

These Co-partnership Articles Are Correct

A FEW days ago I received the following articles of co-partnership, with the request that I advise the inquirer as to their completeness.

The articles of co-partnership seem to be in all respects O. K., and should answer your purpose very well.

I would suggest, however, that the following paragraph be added, as it will serve to give each of you much more protection than if it were left out:

"AND the said parties hereby mutually covenant and agree, to and with each other, that during the continuance of the said co-partnership, neither of them shall nor will endorse any note, or otherwise become surety for any persons whomsoever, without the consent of the other of the said co-partners. And at the end or other sooner termination of their co-partnership the said co-partners, each to the other, shall and will make a true, just and final account of all things relating to their said business, and in all things truly adjust the same, and all and every stock and stocks, as well as the gains and increase thereof, which shall appear to be remaining in money, goods, fixtures, debts or otherwise, shall be divided between them."

I trust that you realize that when you become a partner, the partnership becomes liable for the acts of any of the partners, and that each partner's interest in the firm is subject to attachment by creditors of the individual partners.

Articles of Co-partnership

THIS AGREEMENT made and entered into this twenty-sixth day of May, one thousand nine hundred and seventeen, by and between George R. Beattie, of Bay City, Michigan, Irving H. Beattie, Bay City, Michigan, and Gordon A. Ream, Bay City, Michigan, WITNESSETH as follows:

The said parties above named hereby agree to become partners in the business of repairing, adjusting and installing electric apparatus on automobiles, and selling accessories and supplies, and such other business as said parties shall mutually agree upon during the term of this contract.

2. The name of the firm shall be "Auto Electric Co." and shall operate at 107 South Chilson Street, Bay City, Mich., till otherwise agreed upon by all and each member of said firm.

3. This contract shall become effective upon the aforesaid parties on June first, 1917, and shall continue in force for the term of

one year, unless otherwise agreed upon by all of said members of the firm.

4. The investments of said partners in said partnership shall be Two Hundred Dollars each in cash to be paid into the treasury of the partnership on or before June first, 1917, and such other amounts as may be agreed upon from time to time by each and all of the said partners. Said Gordon A. Ream also agrees to give his entire time and efforts to the promotion of said business and shall be the general manager of the firm. Said Irving H. Beattie shall give his entire time and efforts to the promotion of said business and shall have the management of the affairs of the office. Said George R. Beattie shall advertise the business of the firm and assets otherwise as shall be agreed upon by the partners from time to time. He shall be and is hereby authorized to sign all checks and other papers of the firm.

5. Said Gordon A. Ream shall receive a weekly salary of Eighteen Dollars, said Irving H. Beattie shall receive a weekly salary of Fifteen Dollars, and said George R. Beattie shall receive a weekly salary of Fifteen Dollars; or, by the consent of all of the partners, a pro rata increase may be allowed to each partner at any time, PROVIDED: that, in case the firm shall, by mutual consent and agreement, be continued after the expiration of this contract, and in case the withdrawals at the end of the fiscal year shall exceed the net profits of the firm, then, each partner shall return to the treasury of the firm from his private funds equal amounts sufficient to replace the deficit in full.

6. The accounts of the firm's business shall be kept in a suitable set of books to be provided for the purpose, and to which all of the partners shall at all times have free access for inspection.

7. An inventory and statements of the business shall be taken at the end of the fiscal period or year, and the profits or losses shared equally by all of the partners, upon which each partner shall be at liberty to withdraw at any subsequent time the whole or any part of his share of the accrued profits as shall be shown in the personal accounts of the respective partners on the books of the firm after the statements have been made and the books closed.

8. In case any partner of said firm should voluntarily effect a dissolution of the partnership before the expiration of this contract, he shall forfeit to the remaining partners one-fourth of his interest in the partnership business (which interest shall be determined by taking an inventory and

statements of the business on such dissolution), and also hereby authorize said remaining partners to retain such additional part of the defaulting partner's interest as shall be necessary to pay any and all private debts and obligations owing by said defaulting partner on account of the partnership relation, said remaining partners hereby agreeing to pay each and all of said obligations at maturity out of such funds as shall be retained for said purpose.

9. All changes in this contract shall be made in writing and executed in the same manner as this contract, and signed by all partners, and attached hereto before becoming effective and binding on the partners.

IN WITNESS WHEREOF said parties hereunto set their hands and seals this twenty-sixth day of May, 1917.

WITNESSETH:

Signed	.....	(SEAL)
Signed	.....	(SEAL)
Signed	.....	(SEAL)

Repairmen in Iowa Have a Lien

Editor Motor World: We received a Havers car in our garage two years ago for repairs. The car was in very bad shape, the cost of repairs and labor on it amounting to \$125. When the car was repaired we notified the owner. He never answered our letter, nor even inquired as to the amount of the bill. In our second letter we told him that the car was in our way, and that we would charge him storage from the time we had notified him that his car was ready for him to take away. We never received an answer. Then we had an attorney write him, but his letters, like ours, remain unanswered. Our letters were registered, so we know they were received. We now ask that you advise us as to the best way to handle this matter so that we may get our money out of the car. Can it be advertised and sold at sheriff's sale?—Hawkeye Garage & Machine Shop, Manchester, Iowa.

Answer.—As I understand it, in Iowa persons having personal property in their possession to which they have imparted additional value by their labor have a lien for their charges thereon where there is no special contract for such lien.

You cannot sell or foreclose the lien, however, without an attorney's assistance.

Editorial Observation

Are You One of Them?

THE whole plane of salesmanship is being raised, and it means that better salesmanship is to prevail in all trades, including the motor car trade.

It means that there are going to be better salesmen, that cars are to be sold in a better way. In every trade it means that the salesman who does not elevate himself as the plane is raised will be eliminated.

Last week the World's Salesmanship Congress held a convention in Detroit, where for four days, from early morning until late at night, successful men from many lines of business told of their plans, hopes and ideals. When the Congress adjourned the minds of the hundreds who attended were filled with the thought of Better Salesmanship. They went home to put into immediate effect many of the modern ideas they heard discussed.

The Congress was made up of high-grade men, men of big ideas, men who have gone beyond the stone age of salesmanship—and men who are willing to learn all they can, and apply it.

It may interest thousands of salesmen to know what is thought of the "What do you want?" type of sales-

man who operates on old-style lines, the man who is not neat, whose appearance is a liability, who doesn't display science in his work.

This type of salesman is looked at much as the gentleman looks at a rough-neck who acts impolitely at a party, as the skilled mechanic looks at the job-botcher, as the farmer looks at the city man who thinks the sun and rain do all the work on a farm.

These higher-minded salesmen and sales managers look upon the salesman-who-doesn't-progress as a factor which must be bettered or eliminated. They are employing and studying scientific methods of selling and of selecting and training salesmen. They are throwing open the road of progress for the salesman who wants to progress and are asking and urging him to become worth more money.

One of the adjuncts of this better salesmanship is more money for the salesmen, for a big salary to a good man is a better investment than a small salary to a poor man. The stride of modern salesmanship is toward better conditions for the salesmen and the demand is for salesmen who can meet the test.

The Office Boys

THE World's Salesmanship Congress should form an Office Boys' Club. It should be made up of all those who once were office boys but who now hold executive positions in the companies for which they once did errands and emptied waste baskets.

The World's Salesmanship Congress is impressively full of these ex-office boys. In introducing speakers—all successful men in their lines—the customary remarks ran like this: "He began as office boy and worked his way to the top." For many of the speak-

ers and members the biography could be done as a form letter, leaving a place for the insertion of the years it took for the office boy to become the boss.

The pride that these men take in their source is one of the factors that assures the solidity of American aristocracy. The blue blood of Europe is often ashamed of an ignoble beginning, which is because he is of an aristocracy based upon fallacy and falseness. The American aristocrat is proud of his office boy record, for it proves his right to title; it immovably and

publicly sets the beginning of his achievement.

One of the speakers at the Congress last week made a plea for the "aristocracy of industry." He held that men who do are the real aristocrats. Some sympathy with his plea may be felt when one looks over a list of these ex-office boys, not the least among whom is the man who opened the Congress—Charles M. Schwab, who, while not an office boy, went from stake-driver to magnate in sixteen years, from a laborer's pay to a million a year.

THE FARM TRACTOR

This is the last of a series of articles which have taken up in an analytical way those features of tractor design that will assist the dealer and garageman to a better understanding of manufacturing, merchandising and maintenance in this field

How Can We Increase Transmission Efficiency?

4

THE transmission of the farm tractor is the most inefficient part of the whole machine, and it

follows that if this transmission could be made more efficient there would result a direct saving in fuel which probably would offset the first cost of producing the more efficient gearing.

Usually, about 40 per cent of the power produced by the engine vanishes in the transmission; this means, virtually, that the engine must be far larger than would be necessary if some more efficient type of gearing could be developed.

In this connection it is absolutely necessary that the tractor of the future be built of the best possible parts. The tractor needs the best of materials, design and workmanship far more than does the motor truck or the passenger car. The tractor has come because its economy over other methods of doing the same work is making it a necessity. The reduction of weight in proportion to drawbar pull and an increase in the transmission efficiency are the two big problems which engineers have before them to-day.

If there is to-day such a thing as an average transmission system for tractors it would be composed of a clutch, a two-speed and reverse sliding gear, a bevel gear and differential, and an exposed gear drive on the rear wheels, a bull-ring gear as it is commonly called. There is evidence in the drafting rooms of several tractor factories just now that efforts are being made to inclose the ring gear, but it is an extremely difficult job, so difficult to do efficiently that it may be questioned whether it is worth while.

Alternatively there is the possibility of driving the wheels through the axles, automobile fashion, this necessitating an extra train of gears within the

40% of Power Loss Is in Transmission

transmission, and such gears will have to support a heavy tooth load. Yet again there is the worm

gear to be considered, and the planetary gear, which can be constructed to give a great speed reduction.

While it is not at present a popular form of drive, there is a great deal to be said in favor of the worm gear. The aim is to waste as little power as possible between the engine and the wheels. A worm gear can be made the most efficient gear reducer if the circumstances of its use are satisfactory and if the reduction required is large, but it does not follow that the worm drive should be the final drive.

Worm-gear efficiency is still largely wrapped in mystery, but one fact seems to stand out very clearly, which is that efficiency is greatest when the rubbing speed of the worm is fairly high. Thus, if a worm with a ten-to-one reduction is about the largest that can be accommodated in the machine, it might be better placed at the engine end of the transmission than at the axle end.

A possible layout would be to have the worm wheel and two sliding spur gears on one shaft mounted in an extension of the axle case; other gears on the differential cage could be meshed with the sliding ones to give the two speeds. Everything would thus come in a common oil bath, just as it does in the case of existing machines with the transmission and worm or bevel gear combined, but the opposite way around.

Probably time will show that the exposed ring gear is the most practical way of getting enough reduction for large-wheeled tractors and that the fully inclosed drive is best for the smaller machines, where the smaller wheel permits a less intense reduction in the transmission.

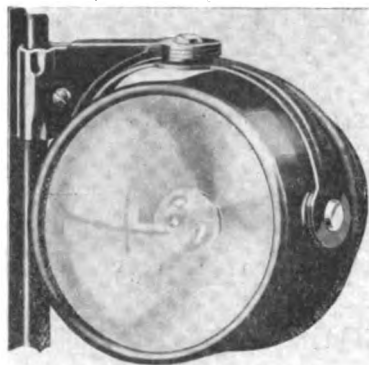
A very important point enters (Continued on page 44)

What is the best type of transmission—bull-ring gear or gearing entirely inclosed and running in oil? Some machines should have the former and some the latter. This is explained in this article.

□ □ Accessories □ □

STEWART V-RAY SEARCH-LIGHT

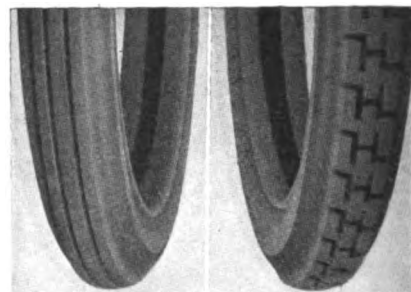
This new spotlight is unique in appearance and at the same time combines all the features desired in such a light. It is said to be extremely powerful, although its size is limited to 6 in. The front face is flanged so that the interior is absolutely sealed to prevent the entrance of moisture and dust. A focusing device is provided so that all types of lamp bulbs may be used effectively. The 3½-in. reducing mirror is installed directly on the back in such a position that the traffic can be seen without swinging the lamp into the car. A feature of the hanging bracket is that it reduces vibration and supports the light more firmly. The light has been designed to give a good appearance in profile or from the side of the car. It is balanced at every angle, consequently cannot be thrown out of



Back

adjustment by vibration. It may be installed on either the right or left side of the windshield without alternation of the bracket or changing a single bolt or nut. The mirror is formed with a recess on the back so that a handle for swinging the light is unnecessary. The bracket is so shaped that

the storm curtains may be fastened around it readily. The rear of the lamp may be removed by turning a bayonet joint so that installation of a new bulb or cleaning of the lens may be quickly done. Price \$5; west of Rocky Mountains, \$5.50.—Stewart-Warner Speedometer Corp., Chicago.



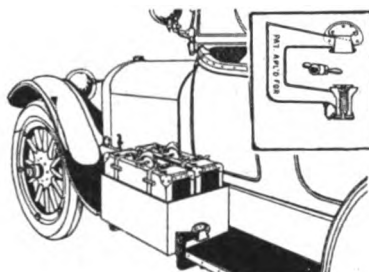
FIRESTONE SUPER-SIZE CORD TIRE

This oversize cord tire is designed for exceptionally hard service and easy riding qualities. It is built with two types of treads; for rear wheels there is the Skidless Double F and for front wheels there is the Triple Tread with a corrugated or grooved surface.—Firestone Tire & Rubber Co., Akron.



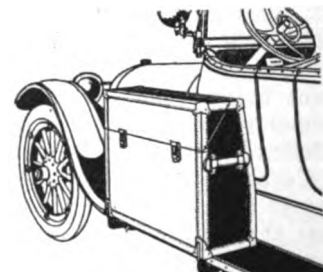
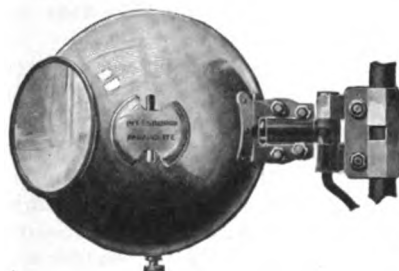
FAWSCO

A combined oil cock cleaner, wrench and gasoline gage renders it unnecessary to crawl under the car to turn on the oil cock. It is supplied with a pin which enables the oil cock to be cleaned very readily. It is divided off so that it may be used as a gasoline measure. It is nickel plated and black enameled. Price 35 cents.—J. H. Faw, 41 Warren St., New York, N. Y.



PITTSBURGH SIX SPOT-LIGHT

A 6-in. spotlight with a triple curvature parabolic reflector to redirect and reflect the light so that the beam is uniform in intensity. It has a push button switch in the handle and is carried on the windshield by a new T-swivel bracket which allows a ¼ swing horizontally and a complete swing vertically so that the driver can illuminate the inside of the car to read a guide book or search for tools. It is equipped with a 3½ in. diminishing mirror.—Pittsburgh Electric Specialties Co., Pittsburgh, Pa.



RUNNING BOARD TRUNKS

Trunks are manufactured for mounting on the running board. They are fastened securely by a special form of C clamp at each end, which enables the trunk to be detached in a moment. The clamps act entirely by pressure and do not mar the running board. The trunk is 25 in. high, 32 in. long and 11 in. wide at the base, and is provided with a waterproof cover. Price \$25. Special design for Fords, 30 x 22 x 10 in., \$20. The clamps may be purchased separately.—Ludwig L. Blake, Emerick & Madison Sts., South Bend.



TOKHEIM OIL WAGON

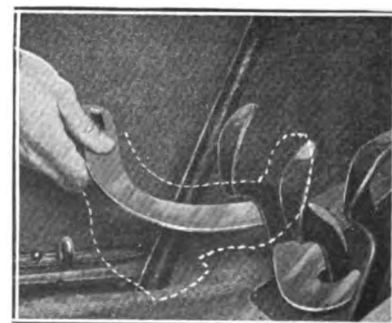
A wheel cart designed for two grades of oil. It saves time for the dealer in selling oil at the curb and eliminates many needless steps running in and out of the garage. Each tank has a 20-gal. capacity.—Tokheim Mfg. Co., Cedar Rapids.

CENTURY CELLULOID CLEANER

It cleans and preserves celluloid and may also be used, it is said, for any polished surface, leather, etc. It is applied with a soft cloth. Price 50 cents per bottle.—Century Auto Supply Co., Chicago.

STOP-THIEF LOCK FOR FORDS

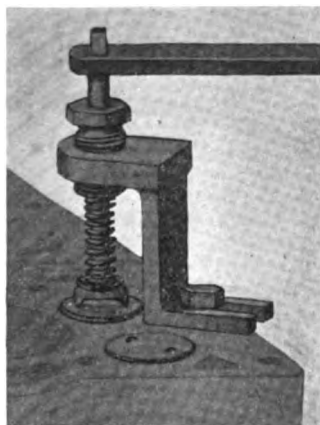
It padlocks the car in high and reverse at the same time, thus rendering it impossible to operate the machine. Price \$2 complete.—Essansee Lock Co., 1409 Arch St., Philadelphia.





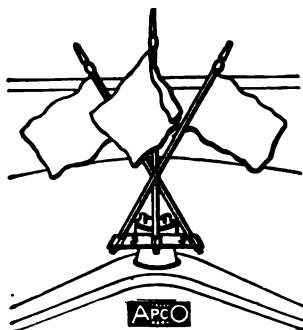
WAYNE CURB OIL PUMP

An attractive, self-measuring curb oil pump with underground supply tank. It delivers $\frac{1}{2}$ pint, pints and quarts. It saves time in selling oil, eliminates waste due to spilling and insures clean oil.—Wayne Oil Tank & Pump Co., Fort Wayne.



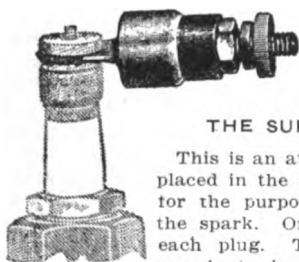
KANDIKID VALVE GRINDER

A valve grinding tool in which the pressure is supplied by a long coiled spring so that the operator simply has to rotate the valve. It is made in two styles, one for use on an engine with the head removed and the other for use on an engine with integral head. In the latter case the bushing screws into the spark plug opening in the valve cap. Bushings are provided for various types of spark plug openings.—W. C. Brown, Niles, Ohio.



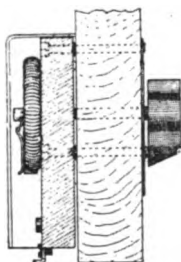
APCO FLAG HOLDER

Flag holder, designed for the Ford, for three flags. It is finished in black enamel. Price 25 cents.—Apco Mfg. Co. (formerly Auto Parts Co.), Providence, R. I.



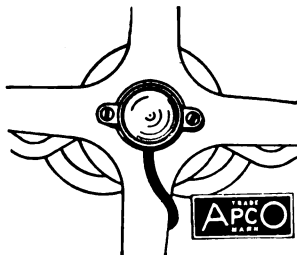
THE SUPER SPARK

This is an auxiliary spark gap placed in the spark plug circuit for the purpose of intensifying the spark. One is attached to each plug. The effect of the gap is to increase the voltage and decrease the amperage of the spark, eliminating spark plug troubles, it is said. Price \$2 each.—Super Spark Co., 1330 Majestic Building, Detroit, Mich.



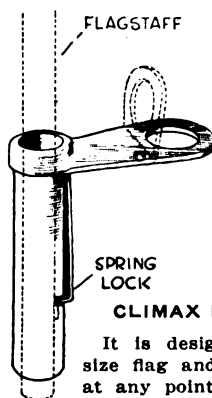
NATURALITE LIGHT CONTROL

A compact switch on the steering post which gives control of the headlights. It allows the headlights to be operated with full brilliancy, legal dim and parking dim. Legal dim complies with the law and parking dim reduces the light intensity still further. With both headlights brilliant, either one may be cut out. Price \$5.—Universal Motor Products Co., Indianapolis.



APCO HORN BUTTON FOR FORDS

A horn button which is mounted at the center of the steering wheel and consequently is more convenient to operate. It may be attached in a few minutes. Price 25 cents.—Apco Mfg. Co. (formerly Auto Parts Co.), Providence, R. I.



CLIMAX FLAG HOLDER

It is designed to carry any size flag and may be mounted at any point where there is a convenient nut. The staff of the flag rests in a deep cup, which is as large in diameter as flag staff. The staff is held securely by a spring lock which bears firmly against it. Price 35 cents; 60 cents per pair.—Climax Shock Absorber Co., Benton Harbor, Mich.

MASON RIBBED TREAD TIRE

A ribbed tread tire with jet black top and white side walls has been added to the line and is designed for easy steering. It is particularly recommended for front wheel equipment to go with latticed non-skid tires on the rear.—Mason Tire & Rubber Co., Kent, Ohio.

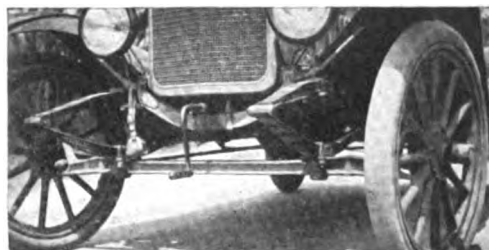


HOLDFORD BRAKE

An emergency brake which contracts on the rear drums. It is readily attached. Particularly desirable for cars in commercial work, as it is designed to be more powerful and wear longer than the ordinary Ford emergency brake. It is applied to the outside of the drum without displacing the internal brake. Price \$8.50.—G. H. Dyer Co., 155 Brookline St., Cambridge.

REST-MORE NO. 2

The car is about 3 in. lower with the springs applied. The front springs are attached directly between the frame and axle, rear springs are also mounted directly on the axle, but are wider apart than the frame side members. The connection between the frame and the springs is obtained by using a transverse member, which bends up at the ends so that it may readily be attached to the tops of the springs. Price \$35; \$20 per pair, front and rear.—Rest-More Spring Co., Ottawa, Ill.



The RETAIL NEWS

COAST

Portland Motor Car Co. of Portland, Ore., distributor for the Packard and Jeffery-Nash motor cars, is in its new building on the corner of Tenth and Burnside Streets.

Dellon Tire & Rubber Co., Trenton, N. J., has opened a branch in Portland, Ore., which will be maintained as the company headquarters for the Pacific Northwest.

Garr Realty Co., Seattle, has taken out a permit for a 3-story and basement garage to be built at 1533 Boylston Avenue. Building will be 43 x 60 ft. and cost \$25,000.

Wallingford & Mitchell, Portland, have secured the agency for the Premier car for the Portland territory. They have a complete plant, including a service station.

Portland Motor Car Co., Portland, will occupy within a few weeks its new home at Tenth and Burnside, now nearing completion. The company is distributor for Packard cars and trucks and Nash cars.

Fosdick Auto Co., Spokane, has moved into its new \$20,000 home at Third and Post Streets.

Ballou & Wright, Seattle, have taken over representation of the Noglare Auto lens.

Spittdorf Electrical Co. of California has leased for a period of five years a space on Tenth Avenue between Pike and Pine Streets in Seattle, where it will move its branch headquarters. The Seattle district handles Utah, Western Canada, Idaho, Oregon, Alaska and Washington.

John Doran Co., Spokane, will shortly move to its new home.

J. W. Capek & Co., Tacoma, has been organized to take over the Ford representation in Tacoma formerly held by Henry Ford.

Eaton & Campbell, Seattle, have secured the distribution of Jeffery cars through the Northwest distributors, the Chilcott-Nash Motor Co., which car will be handled in conjunction with the Dodge line and Republic trucks.

M. S. Bringham Motor Car Co., Seattle, has appointed sub-dealers for the Form-A Truck, as follows: Valley Garage, Wenatchee, Wash.; Cambat & Mote, Bellingham, Wash.; Farmers Co-operative Mercantile Co., Mansfield, Wash.; and Public Garage, Arlington, Wash.

Paige Motor Sales Co., Seattle, will move to its new home on Pine Street and Boylston Avenue early in the fall.

McDonald-Green Motor Co., Oakland, has opened a branch in San Jose.

F. L. Du Broy, San Francisco, Cal., northern California distributor of the Saxon and Mitchell, has opened a branch at Chico, Cal.

Western Auto Electric Co., Los Angeles, has opened a branch at Pasadena. The building was erected especially for the company and is 50 x 110 ft.

Greer & Wilson, San Jose, Cal., have opened an automobile accessory store.

Wiley Motor Stores Co., Long Beach, Cal., has moved its machine shop from 240 American Avenue to 117 East Fourth Street.

Cable & Gilbert Co., Bakersfield, Cal., has added the Stearns-Knight and Monroe to its line.

Prough Bros., Bakersfield, Cal., Chevrolet distributors for Kern County, have opened salesrooms and a service station.

Norwalk Tire Service, Bakersfield, Cal., is occupying new quarters.

Homer J. Ling, a mechanical engineer, is now operating the Central Garage at Oakdale, Cal.

T. L. Newton, Fresno, has moved his repairshop.

J. S. Ellis, Oakdale, has established the Auto Service Station, specializing in battery work.

Mongerson's Electrical Machine Works, Bakersfield, Cal., have installed a battery department.

Auto Electric & Battery Co., Bakersfield, Cal., has erected a building designed exclusively for Willard battery service.

Marshall Vulcanizing Works, Modesto, have moved.

Highway Garage, Oakdale, Cal., has been appointed Chalmers dealer.

NEW GARAGES

E. G. Tennant (\$17,100)...N. Yakima, Wash.
W. E. Putnam and Charles McKenzie,

(60 x 100), Milton, Ore.

George Johnson (70 x 100, \$6,000),
Milton, Ore.

B. E. Gregory (50 x 120)...Okanogan, Wash.
Kearns Motor Sales Co.....Spokane, Wash.

F. D. NaylorStockton, Cal.
Vern C. Wittleton.....Riverside, Cal.

E. B. Pegg, G. A. Goslin and S. Degioria,
Bakersfield, Cal.

F. E. Smith (100 x 140).....Los Angeles
P. R. BurrisTurlock, Cal.

Ceres Motor Supply Co.....Ceres, Cal.
Fosdick Automobile Co.....Spokane

EAST

East End Tire Co., Inc., has been formed in Pittsburgh and will open a salesroom at 5901 Penn Avenue. The company will distribute Beacon tires.

MIDDLE WEST

Grand Rapids Overland Co., Grand Rapids, western Michigan distributor for Overland and Willys-Knight cars, will soon move into its new home, which is fast nearing completion. The building is 120 x 200, two stories high, of mill construction.

P. K. White and W. F. Kelly have opened an automobile accessory shop in Gary, Ind.

Indiana Auto Supply Co. of Laporte will open salesrooms in the building recently occupied by the First National Bank.

Auto Clearing House of Joliet, Ill., has opened a branch salesroom. In addition to handling used cars, the company will carry a line of tires and other accessories.

Groves & Ziegler Garage, Decatur, Ill., has been sold to W. H. Forbes.

C. M. Saxby, Freeport, Ill., has purchased the livery business of J. E. Hoyman on Spring Street. He will dispose of the horses and will operate a garage and repairshop.

SOUTHWEST

Chris Hoffman has purchased the interest of M. Clark in the Simpson-Clark Motor Co. The name will be changed to the Simpson-Hoffman Motor Co.

Tunnall & Timken, Larned, Kan., have opened a repairshop.

C. E. Eckelman, Manhattan, Kan., has leased the garage formerly operated by John Huse. He will have the Studebaker agency.

Clyde R. Wilson, Strong City, Kan., has purchased the Strong City Garage from A. D. Reifsnnyder.

Adolph J. Koch, Chase, Kan., has purchased the City Garage.

R. E. Fisher, Haven, Kan., has closed his garage and taken over the repairshop of the Haven Garage.

Charles E. Neal, Cotulla, Tex., has added a salesroom for Ford parts and accessories.

Egge Auto Co., Plainview, Tex., has leased the Brooks Garage next to its present location and is running both places. In addition to the repairshop it has the agency for the Chevrolet.

Harris & Saulsberry, Temple, Tex., have opened a repairshop.

The J. W. Sanders Cadillac Co., Little Rock, Ark., has been sold to Bernstein Bros. of Shreveport, La. O. G. Crittenden will be retained as manager. The new firm has the agency for the Cadillac in four States.

S. C. Well Motor Co., Little Rock, Ark., have been made State agents for the Little Giant Motor trucks. They will also maintain sales and show rooms in Pine Bluff, Ark.

C. F. Koontz and J. G. McGinnis, Goodland, Kan., have leased the Hargrave Garage.

Hudson-Reed Motor Co., St. Louis, has been organized to distribute the Premier and has opened salesrooms at 3040 Locust Street.

L. P. Matthews, Hot Springs, Ark., has been appointed Little Giant truck dealer and will open a service station.

Jay Lescher, formerly Jeffery dealer at Mount Carmel, Ill., has been put in charge of the parts department of the Rottersmann Automobile Co., St. Louis, Jeffery distributor.

Roy C. Solomon Motor Car Co., St. Louis, has been incorporated for \$10,000, with Solomon and Chris Hasenpflug as main stockholders. The Solomon company started as a used car dealer and recently became a Pathfinder distributor.

F. W. Bettys, Perry, Kan., has opened a repairshop.

J. L. Jones, Weir, Kan., has opened a repairshop.

The Igou Motor Co., St. Louis, is in its new quarters at 2807 Locust Street.

Harry McGee, Warrentown, Mo., has bought the interest of his partner, William Drumert, in the Water Tower Garage.

Central Garage, Purcell, Okla., have made a 50 ft. addition to their building.

Motor Sales Co., Wichita, Kan., have opened their new salesroom. They are the representatives for the Empire and Chevrolet.

McDowell Bros. Garage, Paola, Kan., was recently destroyed by fire. The loss on the building was covered by insurance.

Palmer Auto Supply Co., Topeka, Kan., has opened salesrooms.

George Wood and F. E. Knapp, Chanute, Kan., have opened a battery service station.

NEW GARAGES

Southwest Auto & Supply Co. (50 x 200,
\$25,000), Springfield, Mo.

L. L. JohnsonArgonia, Kan.

Rolfe & HarteWetmore, Kan.

Carl TeichgraberNewton, Kan.

Mentzer Bros.Pawnee, Okla.

L. P. BurtonWelleetka, Okla.

Hollis Bros. (75 x 100, \$10,000)...Nowata, Okla.

Barkshire & WaltersCaruthersville, Mo.

Missouri Motor Co.....Higginsville, Mo.

Fletcher & Barger.....Ironton, Mo.

J. C. Gunn & Son.....Bethany, Mo.

Edson GarageBethany, Mo.

L. KuhsSt. Louis

M. Henschwander.....Garden City, Mo.

Harvey GilbertLowry City, Mo.

Yehle GarageTina, Mo.

White Front GarageWichita, Kan.

Frager & Freel Garage.....Seneca, Kan.

A. C. WheelerGarden City, Kan.

Bud Ball GarageColby, Kan.

A Department of BETTER MECHANICS

No. 28

Camshaft Removal on Studebaker Four and Six

Camshaft removal is seldom necessary, but when required may be done without taking the engine from the frame, or without removing the flywheel. The uninitiated will often do one or both of these.

Three symptoms indicate removal of the camshaft advisable. They are:

- 1—An intermittent knock, caused by end play in the camshaft.
- 2—Noisy camshaft gears.
- 3—A noisy tappet, that cannot be quieted by adjustment.

TO REMOVE THE CAMSHAFT

- 1—Drain radiator, and remove.
- 2—Remove the oil pump after disconnecting the pressure pipe line. Openings in both the clutch and flywheel render the three oil pump retaining bolts accessible. First, line the openings in the clutch up with the openings in the flywheel. Then turn the flywheel with the clutch engaged, until the oil pump bolts are exposed. Use a 5/16 in. socket wrench to take out the bolts.
- 3—Remove the three screws holding the generator, and after removing the generator wire, remove generator.
- 4—Remove fan and belt.
- 5—Remove the cap from the distributor.
- 6—Remove the six bolts holding the distributor housing and remove the distributor housing.
- 7—Using the special puller, Fig. 1, remove the starter clutch.
- 8—Remove the gear case cover held

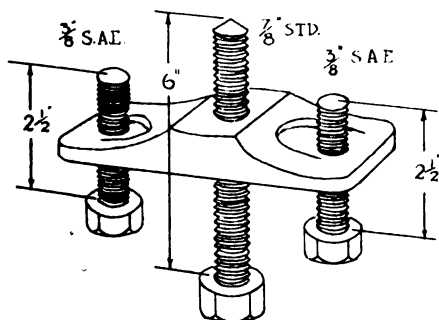


Fig. 1—Puller for removing starter clutch

by eleven bolts. The water circulating pump comes with it.

9—Remove the front camshaft bearing set screw, Fig. 2.

10—Raise each of the valve tappets, one by one, and lock them in the up position by inserting a cotter pin in the holes provided in the tappets, Fig. 3. Many mechanics remove the entire valve assembly when removing the camshaft. This is unnecessary, if the valves be locked in the up position.

11—Drive the camshaft forward, from the rear end.

12—Work and twist the camshaft, so

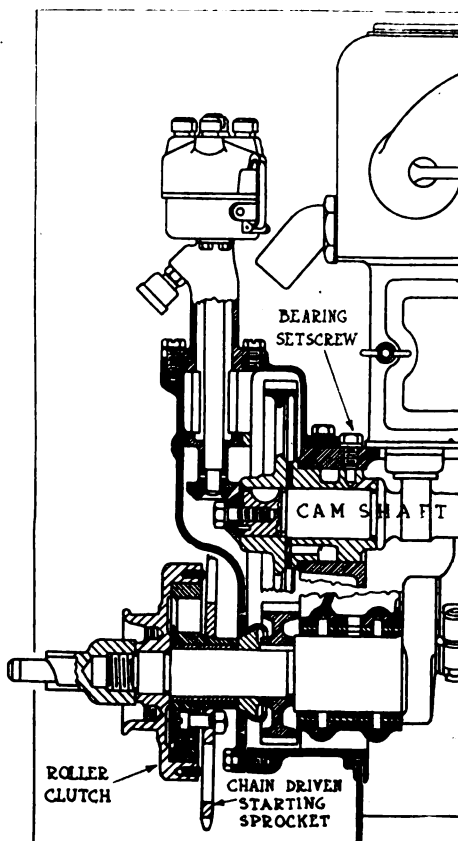


Fig. 2—Before the camshaft can be withdrawn the generator, distributor, starting clutch and gearcase cover must be removed

that the cams will slide past the tappets and bearings, and pull it out free from the engine. It may be found necessary to remove the two forward engine bolts, and raise the front end to permit the camshaft gear to clear. This is occasionally necessary on certain models.

13—Place the camshaft on the bench, and after cleaning, examine for wear.

THE INSPECTION

1—Grooved cams cause noisy valves, and necessitate a new camshaft.

2—Looseness in the front bearing necessitates a new bearing, or a new thrust washer, depending on the amount and nature of the wear.

3—Grooved bearing surfaces on the camshaft require that new bearings and camshaft be installed.

4—The timing gears should be worn evenly, if at all. A small amount of visible wear makes replacement advisable if the gears have been noisy.

5—Remove the 3/8-in. set screw in the camshaft end and pry the distributor gear off with a knife or screwdriver.

6—Remove the camshaft gear. An arbor press should be used if available, though a gear puller may be employed.

7—Remove the Woodruff key from the camshaft end.

8—Remove the camshaft front bear-

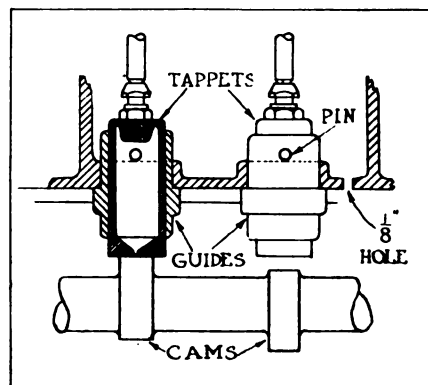


Fig. 3—The push rod is held away from the cam by inserting a cotter pin in the hole shown. The 1/8-in. hole at the right is for oil drainage

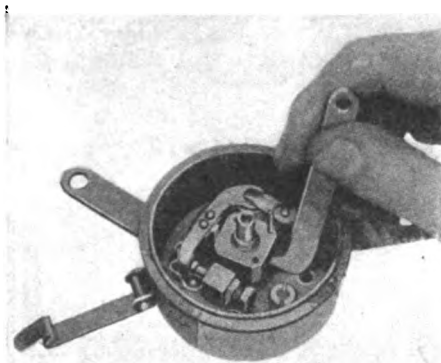


Fig. 4—Tool for prying the breaker cam loose

ing and thrust washer. Examine both for wear.

9—Place the camshaft in a lathe and note whether it is sprung out of alignment. The bearings should all line up, and if not, a new camshaft should be placed in the engine.

THE ASSEMBLY

After providing the necessary new parts, the engine may be assembled as follows:

1—Replace the front camshaft bearing.

2—Replace the thrust washer.

3—Replace the Woodruff key.

4—Start the camshaft gear on the shaft by driving it in place. Replace the distributor gear and catch the central screw. This screw may now be used to force the camshaft gear onto the shaft. Tighten this screw until all end play in the front bearing is removed, but not tight enough to bind.

4—Work the camshaft back into place. The top of the gear must be tipped forward to enter the rear bearing.

5—Mesh the camshaft gear with the crankshaft gear so that the two prick punch marks on the camshaft gear teeth straddle the single prick punch mark on the crankshaft gear tooth. Then push the camshaft home.

6—Replace the front camshaft bearing setscrew.

7—Replace the gear case cover and the distributor housing, together with the distributor.

8—Replace the generator.

9—Replace the fan assembly.

10—Replace the starter clutch. This may be driven on with a hammer and a piece of soft steel.

11—Replace the oil pump. The holes in the clutch and flywheel must be again brought into alignment. Two persons are required on this part of the work, one to hold the pump in place and one to catch the retaining bolts. A new pump gasket should be inserted if the old one shows the slightest defect. Set the gasket in shellac.

12—Replace the radiator assembly.

13—Before replacing the oil pressure pipe on the pump, shoot a gun full of cylinder oil into the pump to prime it. Otherwise the pump may not work, and the bearings of the engine may be burned out.

TIMING THE SPARK

1—Open the compression cocks and turn the engine until cylinder No. 1 is on the compression stroke.

2—The exact upper point of this cylinder is indicated by the flywheel mark UP-D-C-1 coming beneath the pointer.

3—Turn the engine until this point is 4 in., on the four-cylinder model, and 5½ in. on the six-cylinder, from the pointer.

4—Throw the spark lever to the farthest advanced position.

5—Remove distributing segment holder from the distributor.

6—Loosen the nut holding the breaker cam to the shaft.

7—Pry the breaker cam loose, using the tool provided for this purpose, Fig. 4.

8—Turn this cam to the left until the edge of the distributing segment, when replaced, comes directly under the No. 1 distributor terminal.

9—Continue turning until the breaker points just start to break, or separate.

10—Tighten the cam lock nut.

11—Replace all wiring.

12—Turn on the spark, and crank the engine by hand. Note the exact point that No. 1 cylinder gets the spark, with the spark fully advanced. It should be the amount specified above. If not, reset the cam until this is the case.

The following adjustments may be readily made at the time that the camshaft is being removed, or may be made separately, as circumstances require:

VALVE TAPPET OVEROILING

Due to the pumping of the valve tappets, oil is sometimes drawn up past the pushrods into the valve chamber. As it cannot readily get back to the crankcase, it collects in large quantities. Fig. 3 shows a method of overcoming this. The valve cover plate is removed, and ¼ in. holes drilled through the casting between each cylinder. Af-

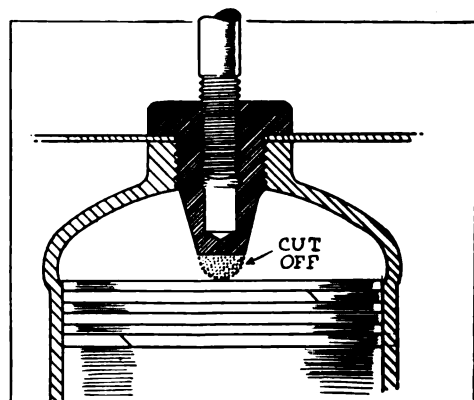


Fig. 5—This point should be filed down if the piston strikes it

ter lubricating the pushrods, the excess oil drains back through these holes to the crankcase. It is advisable to have the crankcase base removed when these holes are being drilled, so that the chips will not be caught by the case. This is not absolutely necessary, however, if care be taken in keeping the chips cleaned up when drilling.

REMOVING INTERFERENCE KNOCK

An exceedingly elusive knock on the Studebaker is caused by the piston striking the central cylinder plug on the up-stroke. The purpose of this plug is to prevent the piston coming so far into the combustion chamber that the rings expand and catch, preventing the removal of the piston. But often it may extend down so far that it interferes with the piston in operation. In such cases the plugs should be removed and cut off up to the threaded portion, Fig. 5. Care must be taken in working on cars so modified, as there is then no means of preventing the piston going to the top of the cylinder, permitting the rings to lock in the combustion chamber.

THE OILING SYSTEM

The oil is passed from the pump to the distributor pipe and goes from the pipe to the pans through several small holes. This pipe occasionally becomes plugged, the indication being a marked increase in the oil pressure as shown by the dash gage. When this happens it is necessary to remove the pipe, and clean it.

1—Remove the oil pump.

2—Drain and remove the base.

3—Using a long pair of pliers, draw the pipe out through the holes in the clutch and flywheel.

4—Clean the pipe out by air pressure. It is usually advisable to put in a new pipe, but if care be taken in the removal and cleaning, the old one may be returned.

5. Broach out the small holes in the pipe until they are somewhat larger than originally. This may be done with a small file. This tends to cut down the pressure and prevent clogging.

6—Replace the pipe, making certain that the distributing holes point directly downward.

7—Pack the outer end of the pipe with a small ring of packing.

8—Replace the oil pump, and base.

Previous Articles

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Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
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Hupmobile—Gearbox removal and replacement	22	May 9
Cleaning metal parts	23	May 16
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Where Shall I Keep My Liberty Bond?

A Safe Place Must Be Provided

AFTER you have bought your Liberty Bond, you must provide a safe place for its keeping. The bonds are not supposed to mature for 30 years. That is to say, the government will not take them up and give you your money back until June 15, 1947. The government is privileged to take them up at the end of 15 years if it so desires. So the bonds must be safely kept for at least 15 years, and perhaps for 30 years.

There are two kinds of bonds. These are:

- (a) Coupon Bonds,
- (b) Registered Bonds.

The difference between these two kinds is that the Coupon Bonds do not have the name of the owner upon them, whereas the Registered Bond has the owner's name inscribed on it and the bond is registered in his name by the Government.

The Coupon Bonds, as their name indicates, have attached to them a series of coupons. These are to be clipped off on the dates when interest is due and presented to your bank for the interest. Registered Bonds have no coupons on them. Instead, the government sends a check to the owner of the bond for the interest every time it is due.

From this it is plain that the Coupon Bond requires far safer keeping than the Registered Bond. There is nothing on the Coupon Bond to indicate who owns it; anyone who presents the coupons can collect the interest regardless of whether he is the rightful owner of the bond or not.

Furthermore, the Coupon Bond may be looked upon almost in the light of money, it is virtually legal tender, coin of the realm. If a \$100 Coupon Bond is lost it is just the same as losing a \$100 bill. Coupon Bonds can be readily transferred from one owner to another without any formality, legal or otherwise. They can be used just the same as money.

In the case of Registered Bonds, however, it is necessary to have the ownership formally transferred by the government. The government is notified of any change that is to be made, and after the unwinding of certain red tape the name of the new owner is inscribed on the bond.

If a Registered Bond is lost, the government should be notified at once, and instructed not to transfer it. If the bond is not recovered, the government will issue a new one after the lapse of a certain length of time.

Registered Bonds, therefore, may be kept in a place that is reasonably safe, such as a fireproof cabinet or safe. It is extremely unlikely that they will be stolen because they are not negotiable without the consent of the owner.

Coupon Bonds, on the other hand, must be kept in an *absolutely safe place*, such as a safe deposit vault, bank vault, etc.

In most cities, a safe deposit box can be rented for from \$3 to \$5 a year. Such boxes will hold 30 to 50 bonds. Hence, such a box rented by a number of men and the cost pro-rated among them would cost each only a few cents a year.

In a number of cases, banks and trust companies in some of the larger cities have agreed to keep Liberty Bonds for those who purchase them through such institutions.

Similarly, large employers with a lot of employees who have bought bonds can easily arrange for the safe keeping of their bonds.

In any case, it would be a work of patriotism and an encouragement to small investors if employers would arrange to rent a safe deposit box for the keeping of bonds purchased by their employees. For a nominal amount an employer can rent a box for the entire term of the bonds—30 years—that will hold from 30 to 50 bonds.

What We Fight For

"The right is more precious than peace, and we fight for the things we have always carried nearest our hearts—for Democracy, for the right of those who submit to authority to have a voice in their own Government, for the rights and liberties of small nations, for a universal dominion of right by such a concert of free peoples as shall bring peace and safety to all nations and make the world itself at last free.—WOODROW WILSON, *President of the United States*.

How many of your employees realize what this war means to them and to the business of the country? Call them all together at noon on Friday of this week for 30 minutes. Tell them the meeting has been called to give them a new view of the war. Then read them this splendid article by Mr. Vanderlip.

Business Will Be Good But Different

*It Must Not Be a Business of Unnecessaries
or Luxuries; It Must Be a Business of War*

*By Frank A. Vanderlip**

President National City Bank, New York

WE have got to organize this nation for a new business—the business of war—and the business of war is no longer merely the business of soldiers, the business of fighting in the trenches; it is the business of the organization of all the industrial powers of the nation. That includes the financial powers; it is doing just what this meeting is significant of—getting men to understand that we are all combatants; we do not have to wear khaki; we are all in this fight, and our success is going to be measured by the completeness of the national organization, by the devotion of the whole people to this one business of war—not to their business as it used to be, but to their business as it is to-day, because their business is war.

There, naturally, I should speak of the financial side. We are facing the biggest financial operation that was ever undertaken. The Government has authorized the issuance of seven billion dollars of securities. Now, you do not know what seven billion dollars means, I do not believe—I know I do not, and I have tried to think of it a great deal. It is the largest sum that we have ever had to attempt to think of, concretely.

How Will We Raise the Money?

All the money in all the savings banks of the country is five billion dollars. All the stocks of all the railroads in the country are eight billion, seven hundred million dollars. All the money in all the bank vaults of the country is less than two billion dollars—less than the amount that we have got to raise right now.

Well, how are we going to raise it? If there is not that much money, where

is it coming from? That is a natural question. Of course, we are very rich; we are a country whose wealth is estimated at 250 billions of dollars, but what is it? It is farms and homes and railroads and factories—the instruments of transportation and production.

You cannot subscribe a railroad to this bond issue, or a house and lot; you have got to subscribe money.

Little "Idle Capital"

Now, get clearly in your minds that everything that you and your forefathers have saved is now in fixed forms of wealth; it is in the farms and the railroads and the factories. There is a little margin that you may call "idle capital;" it is not really idle; it is on deposit in a bank, and has been loaned by the bank. That is what the bank is for.

If there should be any great amount of calling of deposits from the banks, or calling of deposits by savings bank depositors, we would be in trouble; we would have contraction; we would have efforts on the part of the banks to liquidate their investments.

Now, we cannot invest this money over again which we have once invested. There has got to be another plan. We have got to recognize that this war must be fought not on the savings of the past, but the *savings of the future*; but the savings of the future are in the future, and we want money now. Well,

the answer to that difficulty is an expansion of banking credit. That is the way this loan is going to be placed. You see examples of that in the action of a manufacturer who says he will take a million dollars of bonds and carry them for his employees, and let them pay in monthly instalments, and he goes to his bank and borrows on those bonds.

Now, there is a typical example of how war must be financed, and exactly the same principle applies to the millionaire that applies to the wage earner; he must borrow in advance of his savings, and liquidate his loan as his savings accumulate; and the richest man in the country ought to be the largest borrower, and everybody ought to borrow according to their ability to liquidate the loan.

Future Savings to Finance War

That is the whole philosophy of financing a war; you finance it out of the savings of the future. The savings of the past have been invested. To anticipate the savings of the future you expand bank credits, and that is the course I believe that we are going to pursue; we are going to see an expansion of bank credits about equal to the loans that will have to be floated. Then we will see a gradual liquidation of those loans as the savings of the future accumulate.

We have got a more difficult job, in

Coming in This Series

Are You Studying Changes in National Business? June 27
Are You Planning for Business Changes? July 3
Are You Adjusting to Business Changes? July 10

*Paper read before the Editorial Conference of Business Papers in Washington, May 25.

one way, than England had. We are absolutely self-contained now, financially; there is no place to go. Whatever is done, we must do. England had a billion and a half loaned on farm bills, that normally and naturally mature; she sold two billions of securities to America. There were outside resources. There are none with us, because we are now the court of last resort, financially speaking.

So whatever is done here must be done, it seems to me, in the way I have indicated—by anticipating the savings of the future, and creating bank credits in the meantime to take their place. Now, that indicates that people must borrow, but the borrower must repay, and there is going to be a great lesson for America—a lesson of thrift; the lesson we needed, perhaps, as much as anything else. We had come to be a nation of pretty reckless spenders.

Must Develop Habits of Thrift

We are going to see now that we must economize; that we must have savings for the future if we are to liquidate this indebtedness that will be created by this war. That is going to be a lesson of tremendous importance to the whole nation. If we can interest millions of people—and it ought to be millions—in this loan—if we can make them anticipate their future savings, and help them contract habits of thrift, if we can teach them something of investments through this, we will have opened perpetual springs of wealth that will yield as much to this country almost yearly as we will pay in the expenses of this war. There is one of the great by-products of the war which will be on the credit side of the ledger.

But economy strikes a chill to people; they say, "that is going to ruin business; if men are going to buy as little as possible, business is going to be bad." Not at all. *Business is going to be different*, and is going to be more active than you have ever seen; but it is going to be a business of necessities. You cannot give this Government seven billion dollars of purchasing power and expect to have as much purchasing power left yourselves as you had before.

You are doing an absolutely unpatriotic thing when you spend money on an unnecessary thing; and that is true, no matter how much money you have, how easy it is for you to make the expenditure. Now, the unpatrioticness of that consists not alone in your devoting money to that unnecessary thing that you might, let us say, devote to this Liberty Loan—that is not it; it is in your employing labor on unnecessary things, when the Government, directly and indirectly, in the organization of the nation, which is necessary, is going to need all the labor that there is.

We are going to see the most intense period of industrial activity that was ever known; it will not be 100 per cent; it will be 125 per cent; they will be employing women and youths, and they will be employing unskilled men for more highly skilled work, and there will be that expansion and development that we have seen in European nations, and we

will have the most intense activity and the greatest wage scale that we have ever known; but it will be a different kind of business.

It must not be a business of necessities or of luxuries; it must be a business of war. That must be in the thoughts of the people.

"But," you say, "this will throw people out of employment, dislocate industry, disorganize commerce." Yes it will. War is not tiddle de winks; it is serious business, and you cannot have war without some worry.

But that is not a reason for serious worry; *you are not going to throw any person out of one job into unemployment; you will throw them out of one situation into another, where there are two jobs waiting for them.* There will be mere transfer of business.

We are going to have great business; we are going to have, as a result of the method by which this loan must be made, a great increase in deposits; we are going to have an intense increase in industrial activity; but we must all get together for this national effort of organization, and we must say, if it pinches here and there—if a man is thrown out of employment because there is less business in a luxury, he must take that discomfort philosophically, and it need not last twenty-four hours, because the other jobs will be waiting for him.

Now, we have got to have savings, and we have got to have savings not only of the wage earner, but of capital. There has been in some people's minds—I think it is pretty well dissipated now—that the Government could spend the same amount of money three times; first, by buying for less than a thing was worth—buying below the market; second, by taxing away all the profits, if there were any profits left, and third, by getting us to subscribe to bond issue. You cannot do that.

Got To Have Prosperous Business

We have got to have prosperous business if we are going to have the power of accumulation to furnish the finances to fight this war. It would be a disaster next to a great German victory to have disaster to our business structure, because if that came, we could not go on with the war. Remember, we have got to finance not only ourselves, but it is just as important to finance all purchases of the Allies in this country.

We are doing it on a wonderfully patriotic basis, when we give to them this huge credit at the same rate of interest that we have raised the money on a tax-free obligation. We ought to keep that clearly in mind; we are performing a great service in giving them the money at the rate that we raise it on a tax-free obligation.

I believe it is the right thing to do, and we have got a huge sum to raise for the purpose, and in calculating the percentage of expenses to be raised by taxation, we ought to deduct everything we are loaning to the Allies; we should not be taxed in order to raise a fund to loan; we should have that percentage calculated on the basis of what we are going to spend for our own Government;

not the aggregate of what we are going to loan all the other governments to spend.

People like to escape taxation, of course; but really I believe there is the most patriotic desire to pay all the taxes that it is wisest to lay upon the business of the country. I do not encounter any hesitation on that score at all; but it is not wise to lay on the business of the country a discouraging tax. *We must have prosperity in order to do this trick, and we must not discourage business by taking all of its profits away while we are fighting the war.* Put a great burden on this generation; yes, but do not put it on it right at the first moment of the war; continue it after the war, if necessary.

Must Have Complete Co-ordination

Now, we are not playing at war; this is not any child's game; we are not carrying wooden guns, and we have got to have the most sincere effort, the most complete co-ordination of effort that it is possible to obtain. I think too many people as yet believe we are in a sort of paper war; that any real fighting is hardly on the program; that Germany is pretty well whipped already; that, in any event, it is a war on another Continent; that it is a long ways off; that the German armies are surrounded by the greatest military forces that ever collected; that it is months before we can really get into it, and that, probably, before that time, it will all be over.

Do not believe it, or, at least, do not act on that theory. There are contingencies possible—I do not believe they are probable—that would put a very different phase on this situation at an early date.

I see some wonderful by-products to come out of this war, that are going to be written on the credit side, and I am not sure but what they are going to greatly over-balance anything that they cost us.

We will learn this lesson of thrift, of which I have spoken; we will open permanent springs of wealth, if we can get millions of people into these habits of thrift. We are going to get another thing, besides learning lessons of economy—and those lessons will be taught to everybody, wage earner and millionaire—but we are going to learn another lesson; we are going to learn that we are fighting for a very valuable thing—Democracy—and that is what this fight is for; it is not because we have been abused and our ships have been sunk and our citizens killed; that is not it alone. It is a great principle, and there never was a nation that entered war with such a superb statement of why as was in the President's declaration.

We are fighting for Democracy, but we are going to learn from the conduct of this war that there are beauties to Democracy. We are going to see inefficiency developed. There is not any doubt of that, and it is impossible that it should be otherwise; but the experience of that inefficiency is going to make every citizen see that he has duties of citizenship, and make him see it more clearly than he has seen it before.

Stephens Six Designed for Heavy Fuel

New Model Arranged to Use Poor Gasoline

ASCIENTIFIC embodiment of the intake manifold with the cylinder head, together with a machined manifold and an unusually short distance for the gas to travel to the farthest cylinders, makes the new overhead-valve Stephens Salient Six a car of unusually flexible performance. The chassis supplants the previous six, which had another make of engine. It is known as the 1918 type and is offered in five-passenger touring car and three-passenger roadster at \$1,385. The manufacturer is the Freeport Motor Branch of the Moline Plow Co.

Two body styles are offered, the model 75, which is a five-passenger touring car, and the model 70, which is a one-seated three-passenger roadster. Both models are roomy, with deep, soft French-piped Turkish upholstery.

Included in the equipment are a Van Sicklen speedometer driven from worm gears at the rear of the gearset and a Kellogg tire pump direct connected to the gearset with a hose connection in a flush plate on the floor board.

It is a product of Root & Van Dervoort, Moline, Ill. It has a $3\frac{1}{4}$ -in. bore and a $4\frac{1}{4}$ -in. stroke with a N.A.C.C. rating of 25 hp. and a dynamometer performance of 57.3 hp. at 2670 r.p.m.

The engine is of unique construction in that it is made up of five main components, a valve-carrying head, a manifold-carrying head, a cylinder head and a valve compartment cover, all separate units besides the oil pans.

The units which handle the intake and exhaust of the gases were designed with a view of handling the present low-grade fuel and burning all of the gas, permitting rapid acceleration and a very commendable degree of flexibility.

The main cylinder casting is a block. On this is mounted the manifold casting, also of gray iron. The Stromberg carburetor is bolted directly to the side of this casting. Above this is the top casting which embodies the overhead valves, rocker arms, etc.

The gas has a short distance to travel from the carburetor to the manifold. It has been the aim to so route the gas that it will remain under an approximate constant degree of heat until it enters the intake valve.

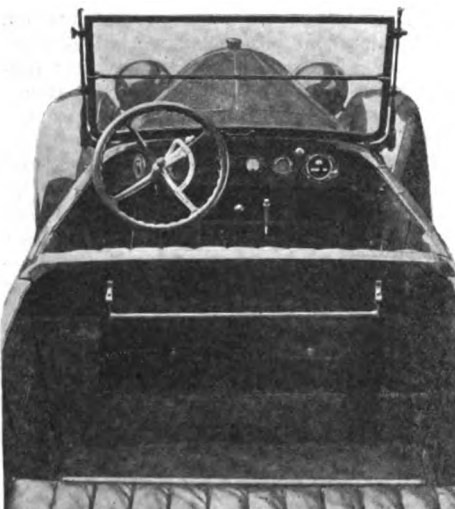
The manifold itself is machined throughout its surface. It is bored through from one end to the other and then the ends are plugged tightly with wooden plugs, making a straight-line manifold perfectly smooth and evenly heated. It seems quite improbable that any gas could condense in this manifold



This is the five-passenger Stephens Six which sells for \$1,385. It is a roomy model with upholstered French piped Turkish cushions

once the engine had reached a correct operating temperature.

Although the bore of the engine is only $3\frac{1}{4}$ in., the valves are $1\frac{1}{2}$ in. in diameter, with $\frac{3}{8}$ -in. lift. This is another factor which tends to make the engine one of high volumetric efficiency.



Although the car is quite roomy, there has been no sacrifice of appearance

To obviate the use of heavy valve springs with these large valves, two springs are used, one within the other. These springs are of different weight and, consequently, of different period of deflection, meaning that one imparts a shock-absorbing effect on the other. The com-

bination gives a valve spring which is quick in operation and yet seats lightly. All this makes it possible to open the throttle wide from 2 m.p.h. and accelerate rapidly without choking.

The overhead-valve arrangement has its own separate casting. It is a simple rocker-arm assembly with an ingenious valve-adjusting feature. The rocker arms may be raised or lowered by turning a screw which may be easily reached from the top of the engine. Thus, a screwdriver is all that is necessary to adjust the valves.

The pistons are of cast iron, scientifically designed for light weight with three plain rings.

Lubrication is by force feed. There is a pressure gage on the dash and a level gage on the side of the crankcase. The breather pipe leads directly to the overhead-valve compartment. This means that all oil spray is utilized in lubricating the moving parts in this compartment.

There are only three visible moving parts on the entire engine. These are the fan, fan belt and fan pulley. The overhead-valve compartment is capped by a sheet-metal case. The fan is four-blade and the belt V-type. Cooling is by thermo-syphon.

The bearings of the crankshaft are of the following dimensions:

Front	$2\frac{1}{2}$ by $2\frac{3}{8}$
Center	$2\frac{1}{4}$ by $3\frac{1}{2}$
Rear	$2\frac{1}{4}$ by $3\frac{1}{4}$

The three camshaft bearings are of equally large proportions. The sizes are:

Front	$1\frac{1}{2}$ by 2
Center	$1\frac{1}{2}$ by $1\frac{1}{4}$
Rear	1 by 3

The connecting rods are babbitted and brass lined, size $1\frac{1}{2}$ by $2\frac{1}{4}$.

With the exception of the engine and a distinctly new design of the body, the car retains most of the principles of design of the previous chassis. There is now a Borg & Beck clutch, spiral-bevel drive and roller bearings in the front wheels instead of the cones.

The carburetor is a $1\frac{1}{4}$ -in. Stromberg with hot-air attachment. Starting, lighting and ignition are Delco, with Bendix drive on the starter, and there is a Willard battery.

A tubular propeller shaft takes the drive from a three-speed gearset and



This gives an idea of the depth of the upholstery and the leg room in the driver's compartment

transmits through spiral bevels to a floating axle. Torque and propulsion effort are taken up by the Hotchkiss principle.

The springs are 37½ in. in front and 53½ in the rear, both semi-elliptic. The wheelbase is 117½ in.

Gibson Buys Goll Business

INDIANAPOLIS, June 16—The Gibson Co., Overland and Willys-Knight distributor, has purchased the business of the George G. Goll Co., Champaign, Ill. The Goll company had the largest sales business in Illinois outside of Chicago. The business was actively managed by the wife of George G. Goll, Mr. Goll having, for 2 years, been devoting his time to national military duties.

Canadian Plant for "Highway" Protector

STEVENS POINT, WIS., June 18—The Bukolt Mfg. Co., Stevens Point, Wis., manufacturing "Highway" tire protectors, is preparing to establish a branch in Canada, at Portage LaPrairie, Man., which is expected to result in the erection of a complete manufacturing plant at that point. The sales office will be opened at once, and business men of Portage LaPrairie have undertaken to provide a suitable factory building which will make possible a production of 200 pairs of protectors daily and employment of 75 skilled men. A large new plant has just been completed in Stevens Point. Early next year the company will build a 3-story structure, 50 x 100, in which the offices and a clubhouse for employees will be combined.

Lamson Going to Elkhart

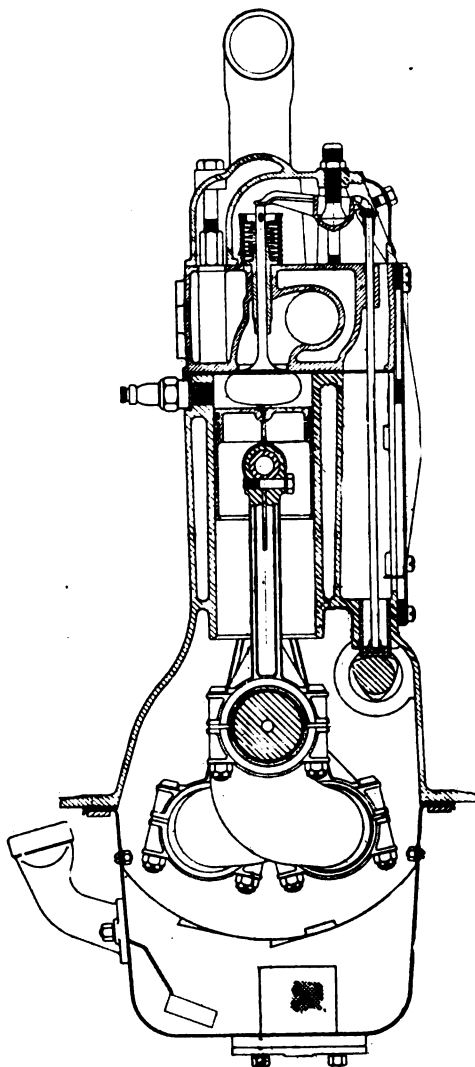
SOUTH BEND, IND., June 16—The Lamson Motor Truck & Tractor Co., a \$2,000,000 Chicago enterprise, which expects to employ 500 men, is to move to Elkhart from Chicago. Architects are now working on plans for a concrete, brick and steel building which will form the first unit of the new plant. The company was organized 2 years ago, and G. W. Lamson is president and G. D. Harris is vice-president. Five different types of trucks are manufactured under the Lamson patent, from ½ to 5-ton capacity.

Alter Company Declared Bankrupt

PLYMOUTH, MICH., June 16—The Alter Motor Car Co. was adjudicated bankrupt by Judge Arthur J. Tuttle, and the disbursement of the company's assets was referred to Lee E. Joslyn, referee in bankruptcy. Creditors of the defunct company are the Remy Electric Co. of Indiana, Carr Fastener Co. of Massachusetts, and the General Spring & Wire Co. of Michigan.

Stanger Takes Over Mitchell

ST. LOUIS, MO., June 16—Wesley A. Stanger, who came here from Chicago several months ago to organize the Southwestern distribution agency for the Ben-Hur Motor Co., has organized the Mitchell Automobile Co. of Missouri.



The overhead valve Stephens engine has a curved cheek crankshaft and the intake passages have been designed to permit the use of poor grade gasoline

This company takes over the Mitchell interests in St. Louis, Missouri, Arkansas and part of Illinois. William A. C. Halwe, president of the William Halwe Grocery Co., is secretary of the new company. The local salesrooms and

business offices will be in the handsome showrooms prepared for the Ben Hur car at 3308 Lindel Plaza. This room originally was designed as the banquet room for the Plaza Hotel.

E. J. Day & Co. Not Retiring

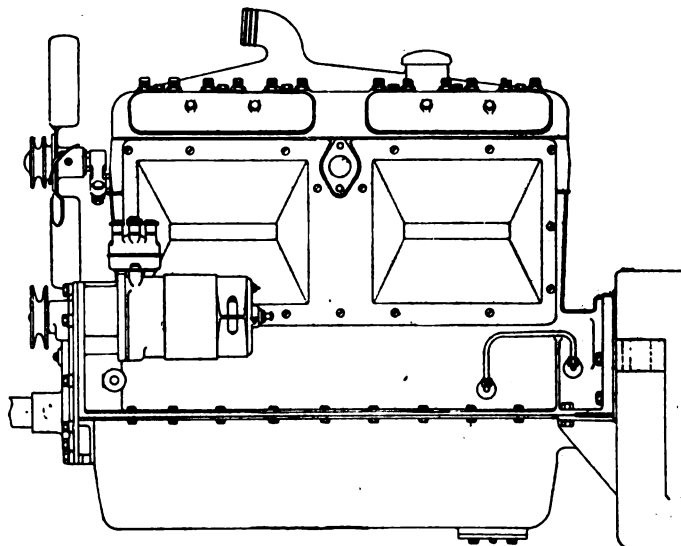
Editor Motor World: We have just learned that R. G. Dun & Co. have sent out a report that E. J. Day & Co. were retiring from business, or words to this effect. This is not only misleading but not correct, and the facts are: E. J. Day, of E. J. Day & Co., is retiring from active interest in this business, and this fact really does not call for any comment on the part of mercantile agencies or the trade press, for the reason that the financial conditions of this firm are not changed or affected.—E. J. Day & Co., Oakland, Cal.

Davenport Favors Appraisal Plan

DAVENPORT, June 16—The Scott County Automobile Trade Association, of which Gardner Smith is secretary, is in favor of a used car exchange plan by which a central bureau appraises all cars offered in trade; members of the association would be governed by such appraisals. Action to this end was taken at the last meeting, which was held at the St. James Hotel. The association telegraphed to J. A. Will, who is representing the Minneapolis Automobile Trade Association in Washington, authorizing him to represent the Scott County organization in the formation of the National Automobile Dealers' Association, described recently in Motor World.

Richmond Likes Appraisal Plan

RICHMOND, VA., June 16—The recently organized Appraisal Board of the Richmond Automobile Board of Trade is giving every satisfaction, according to W. R. Walker, the secretary. The board now passes on practically every motor car offered in exchange for a new car. Often its services are sought by car owners who wish to sell cars to individuals.



The engine has an unusually cleanly external appearance, every working part being inclosed except the fan. Quiet operation follows as a matter of course

Detroit's Used Car Show Proves Value of Advertising

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- 1—*The dealers are divided in their opinion as to the show's value.*
 - 2—*The show should have been better advertised beforehand.*
 - 3—*The dealers who made an effort sold cars.*
 - 4—*The show would have been better had it been more show-like.*
 - 5—*The cars shown were generally in good condition.*
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DETROIT, June 18—Detroit's Used Car Show closed this week and the dealers are quite enthusiastic over it. Some are more enthusiastic than others because they sold more cars. Some of them had few cars to sell and went into the show largely from a desire to co-operate with the rest of the dealers in the association. Those who put cars in the show, advertised them and gave their exhibits serious attention, sold quite a few cars.

The show was held in the Crosstown Garage, which is on John R Street, about two miles out Woodward Avenue from the business section. This garage has just been completed by its owner and is the largest single available floor space in the city. In the middle of the week there were 135 cars on the floor, and there was room for about 25 more without crowding the floor at all.

The attendance at the show was not all that it might have been, and the dealers practically agreed that better preliminary work and more advertising would have helped to put the show across in a bigger way.

When the Chicago show was held there was not all the newspaper advertising there might have been, but nearly 300,000 free tickets were distributed and there was a big parade of cars the day the show opened. This helped to make the Chicago show one of the most successful used car ventures that have been held. Only 30,000 tickets were distributed for the Detroit show, and because of the lack of advertising and the presence of the World Salesmanship Congress, the fact that the show was on did not get home to the people with proper emphasis.

Many of the cars leaked oil, which made pools under the cars and did not add in any way to their salability. If the cars could not have been made tight, drip pans or some other arrangement should have been provided.

Most of the cars seemed in good condition. Those that had not been rebuilt and repainted still looked pretty fair and seemed salable, although the

springs, axles and lower parts of the chassis were rusted and muddy. The tire carrier and straps on the rear of one car were a serious defect from a sales standpoint.

Stricter rules might have been enforced. The door man did not find it difficult to smoke a cigarette whenever he desired. The building was provided with plenty of windows, but these were not opened to afford ventilation. Ventilation was necessary because the motors were run in the building. Running motors in a show is not common, but because of the large floor area it was possible to use the aisles as a demonstration track, and this seemed to meet with the favor of the exhibitors. When the building was crowded, however, motors should not have been run and no attempt should have been made to take cars out.

The newly finished floor developed a large quantity of cement dust. This made the air a little dusty when many

people were in the building, and the dust tracked over the runningboards of the cars and disfigured practically all of them. Porters to dust the cars were not as numerous as they might have been. One salesman said he had asked the dealer to have a porter sent over, but that none had appeared. It, of course, was beneath the salesman to dust the car himself.

The prices on the cars are said by many show-goers to have been high, but, on the other hand, the dealers and salesmen assert that they were able to get the prices marked on the appraisal tags.

It is possible to get all extremes of opinion as to the desirability of the show. One of the dealers when asked about it grunted emphatic negatives to all questions, while others said they believe it to be a good thing and in favor of having the Crosstown Garage transformed into a used car market for use the year around.

Are You Making Money on Used Cars?

We know the weather is hot, and all that, and you probably don't like to write letters, but let's have some letters from Motor World readers on this subject. Read what follows—and then let's have your view of the situation.

1—C. L. Butler of Butler-Veitch, Berkeley, Cal., asks: "What better means is there of advertising than by putting more cars on the streets by means of trading? All advertising mediums cost—why should not used cars, which is a legitimate medium?"

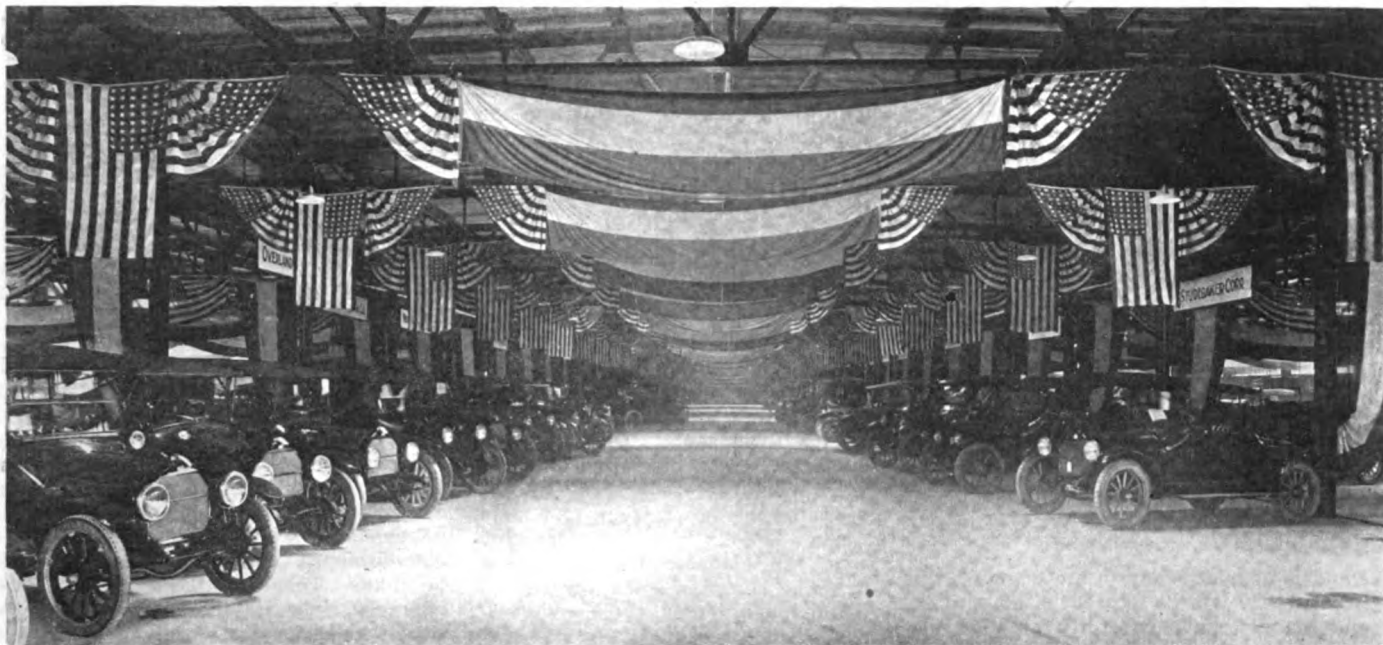
What's YOUR answer to this?

2—P. E. Chamberlain, Swenson Auto Co., Denver, disagrees with Motor World's statement that dealers MUST handle used cars. He says the problem never will be solved as long as the dealer has to sell the car he takes in trade. He says: "But put this down as a prediction: The used car problem will never be solved until the accepted plan provides for (1) cooperative appraisal and (2) a cooperatively patronized used car salesroom" (motor mart, or used car market).

What Is YOUR Answer to this?

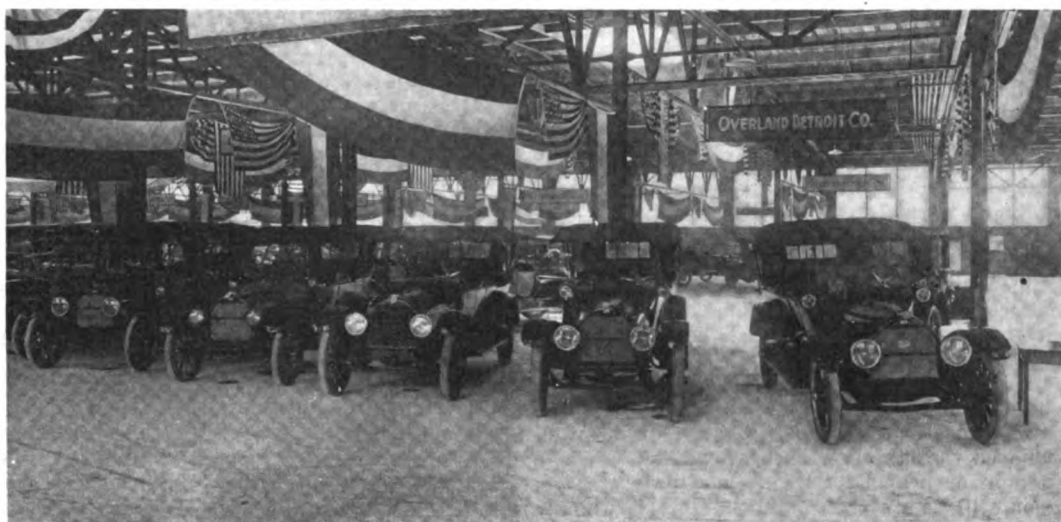
All you Motor World readers have had experience in handling used cars and you all have opinions. Why keep a good opinion or idea bottled up? Bring it out and give it some air.

The Detroit Used Car Show Was Held in One of the Biggest One-floor Garages in the Country



This long vista—and there is another one just like it on the other side of the floor—was used as a demonstrating track. Nearly every prospect wanted to see the car run

The cars were generally in good condition—at least they looked well—but the floor was covered with many pools of oil such as are visible under four of the five cars in the foreground. This picture is taken cross-wise of the building from the same point from which the upper picture was taken



The front of the building does not at all indicate the amount of space inside. The building also was difficult to locate even when one was in the vicinity, because there was no sign over the street, the trees along the thoroughfare conceal the front, and the sign on the front, even when one was near, was not conspicuous. Because of its great floor area, it has been suggested that the building would make a fine permanent used car market

Lelands Leave Cadillac; Enter Airplane Business

Will Manufacture Planes for Government on Large Scale—Plans Not Yet All Disclosed

DETROIT, June 18.—Henry M. Leland, president and founder of the Cadillac Motor Car Company, and his son, W. C. Leland, vice-president and general manager of the company, have resigned. Both father and son will end their duties with the Cadillac Company July 31, the end of the fiscal year, and will begin the manufacture of war airplanes for the United States Government on a large scale.

Plans are going forward for the reorganization of the Cadillac executive staff, but have not progressed sufficiently so that an announcement can be made of the successors to H. M. and W. C. Leland.

Leland is not yet ready to state where his new factory will be located, although he and his son have carefully mapped out the plan of procedure. They expect to manufacture on a huge scale. Early in the war Leland visited England to study aviation needs, and conferred with Lord Montague, Lord Sydlingham, Sir Albert Stanley and others. He has recently been in constant conference with members of the Council of National of Defense. Referring to airplane conditions, he states that at the present time there is not an airplane made in America that is fit to fly over Germany during the war, and that most of the machines that have been made were manufactured by enthusiasts for experimental purposes. He said he is going to help the United States put a fleet of aircraft in the air that will be built along scientific lines, and will be safe to use over the hostile army. It is believed that the new factory will be located in or near Detroit. Leland and his son will retain their financial interests in the Cadillac Company.

Chalmers Holds Meeting

DETROIT, June 18.—The Chalmers Motor Company is holding a meeting today of sixty of its largest distributors and branch managers and fifteen zone managers who will consult with Chalmers officials and review the new series of Chalmers bodies.

Reo Wins Valve-Patent Suit

LANSING, MICH., June 18.—The Reo Motor Car Company was completely exonerated by patent decision handed down by Judge Hazel of New York, June 13, in the case of William Barber vs. the Reo Motor Car Company. This was the case in which the patentee sought to recover \$1,500,000 for alleged infringement of an ancient patent. In the preliminary action the Reo Motor Car Co. was given an adverse decision due largely to the

fact that the company was certain that there was no similarity between the Barber patent and the Reo mechanism and did not treat the matter seriously.

When the New York case finally came to trial, the Reo company introduced additional evidence with the result as above indicated—a decision to the effect that the Reo valve mechanism does not, either in design or in application, infringe the Barber patent.

Toledo Adopts Grand Rapids Plan

TOLEDO, June 18.—The Toledo Automobile Dealers' Association has adopted the used car appraisal plan used by the dealers' association in Grand Rapids, Mich.

Before adopting the plan, V. G. Kibby, the secretary, was sent to Grand Rapids to investigate. Upon his return a meeting of 54 men, representing 30 of the 34 dealers in the association, was held at the Secor Hotel. When the secretary said that full co-operation was necessary to make the plan a success the 54 men unanimously voted their co-operation.

Each dealer agreed to put up \$50 to start the work. For each appraisal \$5 is to be charged, \$2 to be paid by the car owner when the appraisal is made and \$3 by the dealer who takes the car in trade. It is planned to have more than one appraisal station. Grand Rapids has but one. An appraiser has not yet been secured.

Pullman Sale Held Up

NEW YORK, PA., June 16.—The proposed sale of the Pullman Motor Car Co.'s plant by the receivers to the National Products Company of Trenton, N. J., has been held up. Creditors of the company on Friday filed their exceptions in the United States district court at Scranton, and Judge Witmer, upon the request of the receivers, will fix an early date for the hearing. The National Products Company agreed to purchase the plant and assets of the company, excepting the accounts and bills receivable, for \$260,000. This sum the exceptants say is not enough, and another bid has been made, one of \$315,000, by Samuel Winternitz & Co. of Chicago and Detroit. Michael S. Niles of this city is the attorney for the receivers. Had not the exceptions been filed the sale to the National Products Company would have gone into effect on Friday, June 15, according to the agreement made some weeks ago.

Harvey Heads Worcester

WORCESTER, June 16.—At the annual meeting of the Worcester Automobile Dealers Association this week the following officers were elected: President, J. C. Harvey; vice-president, Fred S. Howard; secretary and treasurer, Oliver P. Tyler; executive committee, the officers and Henry J. Murch, Simeon H. Baker, Allen N. Davis and Frank H. Kenney.

Joy Aviation Field to Bear Selfridge's Name

Honor Paid to First Officer Killed in Flight—School Will Accommodate 900 Air Tyros

MOUNT CLEMENS, MICH., June 18.—The Joy Aviation Field which has been sold to the government, as was reported in a recent issue of MOTOR WORLD, will be known officially as Selfridge Field, and will be ready for aviation work by July 5. The field will be a replica of the others which are now being constructed throughout the country. It is a 600-acre field and contains 160 acres of timber land, which is being cleared and will be converted to construct corduroy roads over the grounds surrounding. Work has been in progress for a short time, and there are now in course of construction twelve hangars, two repair shops, six officers' quarters, six non-commissioned officers' quarters, school buildings, hospital, power house, six barracks, four latrines, quartermaster's supply department, aerial supply depot and machine shops. Some of these buildings are nearly ready for occupancy. The field will be a complete city with grading, sewage systems, heating and lighting plants, school houses for the children of its occupants, and so forth.

When in full operation 900 students will be accommodated. The field is named in honor of the late Lieutenant Thomas N. Selfridge, the first United States navy or army officer killed while flying. The chief test for students applying for the aviation course is for perfect balance, which is determined by examining physicians who investigate the amount of fluid in certain ducts in each side of the head.

Fords Short in Los Angeles

LOS ANGELES, CAL., June 16.—Ford dealers are 110 days behind orders with deliveries. The demand is so great that purchasers who paid \$415 for their cars have been known to sell again for \$450. The situation is especially hard on the dealers in Ford truck attachments because their business depends upon Ford deliveries. Some of these dealers are buying used Fords and rebuilding them for use in connection with the truck unit.

Ford Passes 2,000,000 Mark

DETROIT, June 18.—Thursday, June 18, was a record day at the Ford Motor Co., as it witnessed the production of the two-millionth model T Ford motor.

Gemco Adds to Plant

MILWAUKEE, June 18.—The Gemco Mfg. Co., formerly the Garage Equipment Mfg. Co., is awarding contracts this week for the construction of a three-story factory addition, 50 x 150, which will cost about \$100,000 with complete equipment. The new factory will enable the company to double its production.

Packard Prize Winners Start on Their Cruise

**More Than 600 Salesmen and Their
Families Will Sail Three Days
—Those Who Won**

DETROIT, June 18—More than 600 representatives of the Packard Motor Car Co., with their families, left Detroit today on board the steamer Noronic for a three-day cruise. The Noronic will carry the dealers and their wives through several of the Great Lakes and return here Thursday morning.

These dealers were the winners of the Lincoln Highway Sweepstakes conducted by the Packard company. Final conclusions of the sweepstakes will be announced on the cruise and the winners will be awarded hand-carved hall clocks.

Department managers of the company have placed exhibits of new models of cars and trucks on the main deck. Appropriate decorations have been installed, and the large dance hall on the ship has been converted into a convention hall. Slogans and statistical charts are hung prominently about the boat.

Depending upon the sizes of the cities, the contest was run in Divisions A, B, C and D. To each contestant was assigned a quota. Passing 100 per cent came to be a common performance. The winners were:

Division A, St. Louis branch, 115 per cent; Division B, Orr Motor Sales Co., Omaha, 200 per cent; Division C, H. S. Thorne, Youngstown, Ohio, 300 per cent; Division D, McArthur Bros., Phoenix, Ariz., 350 per cent.

Master Salesmen—Division A: F. J. Peterson, Cleveland, 48 cars; F. C. Sibbald, Cleveland, 30; C. E. Holzkamp, New York, 27.

Division B: A. S. Blair, Baltimore, 21; H. C. Berg, Seattle, 19; D. H. Luttrell, Washington, 19.

Division C: E. W. Travis, Youngstown, 23; R. C. Lemm, Denver, 20; W. R. Hicks, Montreal, 11.

Division D: A. R. Dearborn, Phoenix, 13; M. D. Cubbage, Ft. Wayne, 8; B. N. Anthony, Texarkana, 7.

Overland Salesmen To Hold Convention

TOLEDO, OHIO, June 13—The Willys-Overland Co. will hold a convention of its star retail salesmen in September. A contest of sales will decide the delegates. Election to the congress will be decided by votes which will be points for each car sold.

Changes in Gibson Branches

INDIANAPOLIS, June 16—Changes in the branch houses of The Gibson Co., Overland and Willys-Knight distributor, at Lafayette, Ind., and at Vincennes, Ind., have been made. At Lafayette L. Z. McKee, has been succeeded as manager by W. J. Reed, who goes there from the main Indianapolis offices. At Vincennes, Sol Allman who has resigned to engage in a private automobile enterprise at Memphis, Tenn., has been succeeded by

Howard Brewer, who has served as assistant manager of the Gibson branch at Terre Haute, Ind.

Ford Truck Demonstrator Ready Soon

DETROIT, June 14—Rumors that the Ford Motor Co. is shipping demonstrator trucks to dealers at this time are untrue. Experiments with the Ford trucks are not yet completed at the Ford factory but Motor World can state authoritatively that all experimental work will be completed within 30 days and that at that time demonstrator trucks will be shipped to dealers.

High Gear Dodge Run

BOSTON, June 16—A 465-mile swing around New England, touching every one of the six States, all on high gear without stopping the motor, and doing it from dawn to dusk, was the endurance run made with the first Dodge Brothers car ever delivered in New England. The start was made with four people in the car: C. S. Henshaw, Dodge dealer; J. H. Keene, the driver; W. L. Shepard, a salesman, and James T. Sullivan, of the Bay State A. A., as observer. The low and intermediate gears were chiseled off the shaft.

Atlantic City Buys Bonds

ATLANTIC CITY, June 18—The Automobile Trades Association of Atlantic City has purchased Liberty Bonds. At the last meeting of the association the treasurer was instructed to invest a portion of the surplus funds of the association with the government.

Oplinger Gets Chalmers Prize

DETROIT, June 12—The Chalmers Motor Co. this week will entertain S. E. Oplinger, of the Paddock-Zusi Motor Car Co., Newark, N. J., who won the grand prize in the sale of Chalmers cars throughout America in the seven-passenger and sedan type. Oplinger will receive a gold watch and a trip through the factory, and will be entertained at the Chalmers Round Table.

Motors Coming from Dover

DOVER, DEL., June 18—The Boyd Motors Corp. has been incorporated in this state with a capital of \$5,000,000 to manufacture engines of the valveless type for automobiles and aeroplanes. The charter of the company permits it to manufacture airplanes and aviation engines.

Chamberlain Going to Chicago

DENVER, June 15—The Automobile Trades Association of Colorado has appointed one of its former presidents, P. E. Chamberlain, as delegate to the convention to be held in Chicago in July to organize the National Automobile Dealers' Association. Other members of the Colorado trades body also plan to attend if they can, and the organization in general is taking a lively interest in the movement for the proposed national body of car dealers.

St. Louis Association Makes Marvin Its Head

**He and Nearly All the Other Officers
Are Oil Men—Eleven Members
Added During Past Year**

ST. LOUIS, June 18—The Motor Trade Accessory Association has provided an oil administration for the coming year. Everett S. Marvin, vice-president of the Imperial Oil Co., has been elected president of the Association, and A. C. Bauer, president of the Bauer Oil Co., has been elected vice-president. Other officers elected were: Treasurer, A. R. Baxter, Shurnuff Manufacturing Co.; sergeant at arms, George Schattgen, Fisk Rubber Co.; Directors: L. E. Allmon (retiring president), Missouri Auto Specialty Co.; A. C. Cornell, Western Electric Co.; John F. Shuford, Phoenix Auto Supply Co.; William L. Ferrier, Fred Campbell Auto Supply Co.; W. F. A. Uhlenhaut, Uhlenhaut Bros. Wagon Co. It was reported that 11 members had been added during the last fiscal year.

Will Make Motors

MINNEAPOLIS, MINN., June 14—The Minneapolis Steel & Machinery Co. is spending \$325,000 for additional plants where it will manufacture motors for trucks and tractors.

184,126 Cars in Michigan

LANSING, MICH., June 15—Up to June 1 of this year 184,126 automobiles have been registered in Michigan. Last year the total number was 160,052.

New Overland Service Station

DETROIT, June 18—The Overland-Detroit Co. opened its new service station here recently and is now giving service to 150 Overland cars daily. The structure was erected at a cost of \$250,000 by the Willys-Overland Co., Toledo, and has been leased by the Overland-Detroit Co., distributors for Overland cars in Detroit and surrounding territory. The building comprises 4 stories, is 150 ft. x 190 ft. and contains 112,000 sq. ft. of floor space. The first floor is used for offices and light repairs and will later include a lounging room for owners. The entire building is steel, brick and concrete and steel pillars supported with concrete in mushroom shape are to be found on every floor. The second floor has additional offices and stock rooms where parts for Overland cars are stored. The third floor is solely for storage purposes and the company keeps 300 new cars stored. The fourth floor is for heavy repair work and painting. More than 150 men are employed and it is expected this number will be increased to 200 shortly. There are between 7000 and 8000 Overland cars in this territory. The salesrooms are located several squares from the service station but plans provide for new salesrooms next door.

40% Power Loss in Tractor Transmission

(Continued from page 29)

here, which is that the high-speed tractor ought to be more efficient than the slow-moving one. Suppose, for example, we have an engine which is powerful enough to pull two plows at four miles, or four plows at two miles an hour. Obviously, the gear reduction necessary to run at the higher speed will be just half that required for the slow speed, if the engine runs at a constant rate. While a twenty-five-to-one reduction is not twice as efficient as a fifty-to-one, it is, other things being equal, an appreciable per cent more efficient.

Is High-Speed Machine Best?

Now, against this argument there is the fact that the high-speed machine, pulling half the number of bottoms, will have to drive itself twice as far for a given amount of acreage plowed, and, as driving itself absorbs power, we may easily be worse off in the final analysis.

There is, however, another and a better way of looking at the problem. We assume a constant engine speed in either case, and a constant power output from the engine. This means that the quantity of fuel consumed will be so much per hour whatever the speed. Pulling two bottoms at four miles, or four at two miles, will give practically the same total time per acre plowed, and if the higher speed is 5 per cent more efficient there should be a gain.

The most important point really is that we do not yet know anything worth mentioning about plowing speeds for best efficiency, from the viewpoint of the plow, and the quality of the plowing. The horse, with its fixed speed, unvaried for centuries, has prevented experiment in this direction. Now that this limitation is removed much may be discovered.

In this respect the tracklaying type of tractor certainly scores, because the small wheels that are used with a chain tread do not require much gear reduction. Suppose, for example, we want three miles an hour at 1000 revolutions of the engine; that the wheel diameter is 48 in. in one case. Then the reduction necessary will be forty-seven to one. With a tracklayer the wheel might be half the size, or even less. If it were 18 in., then the reduction needed in the transmission would be only eighteen to one.

Power Absorbed Is Debatable

Of course, it is debatable what amount of power is absorbed by the track, but there is reason to believe that this is less than would be imagined, while the power absorbed by a large wheel in picking up lumps of dirt and cutting its way along is probably more than might be expected. On points like this we need more information, we need scientifically conducted tests; the trial and error method now being used is a costly way of settling engineering questions. Practically the only conclusive way to discover relative advantages of wheel and creeper would be to make two ma-

chines as nearly identical as possible except for form of drive. One might, for example, take a 20 hp. tracklayer and substitute rear wheels with a bull-ring drive for the tracks and sprockets. Of course, just a single pair of machines would not suffice to more than indicate the comparative efficiencies; one would need a few score to reach a final conclusion.

Electric and Hydraulic Drive

Apart from gear drives of all sorts there are others to be considered, but it seems improbable, at least at present, that either electric or hydraulic transmission is likely to be adopted for tractor work. Electric drive might be applied to a very large machine, but if it were there would not be much object in hauling about the engine and generator. Rather would it seem better to deposit the power plant at a fixed spot and let the tractor be merely a motor on wheels, connected to the generator by cable.

Hydraulic drive is the more promising of the two, but the writer is not aware of any system of hydraulic gearing devised to give a large reduction. All those developed for motor-truck use have a high-gear position where the hydraulic apparatus is inoperative, and if a hydraulic gear is to do successful tractor work it should provide a permanent twenty- to sixty-to-one reduction. There is opportunity here for inventors to show what they can do. If the efficiency of gearing can be improved substantially a direct saving in fuel would result, and this is worth even an increased first cost.

High-Pressure, Oil-Fired Steam Plant

Yet another opportunity, still to be tried, is the application of a high-pressure, oil-fired steam plant; such a plant as is used in the Stanley or Doble cars. A tractor so equipped would bear but small resemblance to the old-style steam tractor; it would use the heaviest of oil fuels, or even coke. Effective condensation is not impossible, so that the water supply difficulty could be overcome. Of course, this suggestion will raise many a smile, but it is not altogether absurd. The degree of automaticity of the Stanley and Doble cars is little appreciated because there are so few of them and so few people that know anything about them. They are as greatly different from the old steam engine as is the modern gasoline motor from the gas engine of twenty years ago. The Stanley and Doble companies are losing a great chance if they do not try out their systems in tractor form.

However, all these things are for the future. Whatever may be tried, and whatever ought to be tried, the big fact now is that we want the greatest possible number of the best tractors we know how to manufacture. This fact will probably produce a situation which will exercise considerable influence upon tractor design for some time to come.

There is great demand for tractor parts, stock parts which can be assembled readily anywhere. Such parts are coming, and coming soon. In an earlier article it was mentioned specifically that engineers had trusted to truck parts, and found them too light in many instances, cooling fans being mentioned as a specific example. The effect of this was to bring the writer letters showing that special tractor fans can now be bought as stock parts—real tractor fans, and not stiffened truck designs. That some of our leading axle makers are only waiting to be quite sure what to make before they begin production is certain, and any slackening in the passenger car business will enable the gear companies to follow suit. Thus, before the year is out it is safe to say we shall have several more stock engines, stock axles and stock transmissions. Stock axles will lead to stock hubs, and so to complete wheels.

May Crystallize Design Too Swiftly

All this will happen much faster than it did in the automobile field, and the danger is that by following the passenger car procedure in this matter we may tend to crystallize design too swiftly. Though stock parts are wanted urgently, it is to be hoped that their manufacturers will not invest very large sums in fixtures which cannot be altered except at immense cost. The tractor stock parts business should be entered gently and warily from the engineering and manufacturing viewpoints.

San Luis Dealers Meet

SAN LUIS OBISPO, June 16—A special meeting of the San Luis Obispo County Automobile Trade Association was held last week. C. H. Kamm, G. W. McCabe, B. E. Patnoe, J. W. Fisher, W. G. Fifield and E. D. Sworthout of this city being present. The meeting was to complete the organization. Beginning the first week in June meetings will be held every first and third Friday, the schedule being that every third meeting is held in Paso Robles, the other two in San Luis Obispo. An executive board was appointed to handle problems of administration, C. H. Kamm, G. W. McCabe and J. W. Fisher of this city and V. C. Malcore and W. C. Henderson of Paso Robles being named on it. The remainder of the session was given over to discussion of trade problems.

Big Texas Vulcanizing Station

DALLAS, June 16—Fourteen business men have organized a company and will conduct the largest vulcanizing plant in the Southwest. It will be known as the Southwestern Sales Agency and will be a branch of the Firestone Tire & Rubber Company. The incorporators are: M. Hull, R. E. L. Saner, V. W. Chamberlain, Charles Turner, A. T. Lloyd, C. Pratt, S. J. McFarland, J. C. Saner, D. M. Waggoner, Philip Tronitz, Edwin Hobby, T. E. Cranfill, G. G. Sherrin and S. D. Hanley. A new three story building is now being erected and will be occupied by the new plant.

Dealers to Organize in Chicago July 10 and 11

National Association to Be Formed in La Salle Hotel—Ruddle Managing the Details

MILWAUKEE, June 18—A formal call for organizing the National Automobile Dealers' Association was issued to-day by Bart J. Ruddle, who is acting as secretary of the provisional committee. This committee was formed in Washington at the time of the fight against the 5 per cent tax.

The meeting is to be held in the La Salle Hotel, Chicago, July 10 and 11. The first session is scheduled for 10 o'clock sharp the morning of Tuesday, July 10, and all delegates are urged to be on hand promptly so that the work may be begun on time in a businesslike way.

A credentials committee will be on hand to meet representatives of associations prior to the meeting, and any dealers who are coming from associations are advised to bring proper authorization from their association if they wish to be considered as representing the entire home organization.

Associations are requested to send at once to Ruddle, 316 Germania building, Milwaukee, the names of delegates and alternates, in order to facilitate the work.

The meetings will be held in the La Salle's convention hall.

Most of the leading dealer associations in the country are getting behind the movement and a strong representation is assured.

New Lapier Tractor-Truck

LAPIER, MICH., June 18—The Lapier Tractor-Truck Co. has placed on the market a tractor-truck, in two models, with a waukesha four-cylinder $3\frac{1}{2} \times 5\frac{1}{4}$ in. motor selling for \$1,900 and \$2,000. The 2 to 3 ton type is furnished as a complete tractor with a cab and trailer without the body for \$1,900 and the $3\frac{1}{2}$ to 5-ton model which includes the complete tractor with the cab and trailer without the body is \$2,000.

Pomona Valley Organizes

LOS ANGELES, June 16—Motor car and accessory dealers in Pomona, Cal., have organized the Pomona Valley Automobile Trades Association. The new organization will have as its object a general campaign to eliminate and keep out objectionable features that have been a menace to the business. These include price-cutting, trade pirates, dead beats and irresponsible people.

Emerson Reorganization Proposed

NEW YORK, June 18—Five stockholders in the Emerson Motors Co. have constituted themselves a committee of re-organization and have sent a notice to stockholders. This notice states that the committee is investigating the affairs of the company with a view of recom-

mending action for the conservation of assets.

The committee states that the company is turning out cars regularly, but not in large numbers, and that the business should be conserved. Stockholders are requested to furnish proxies to be voted when the question of re-organization comes up. The stockholders on the committee are: John P. McEwan, William J. Lowrie, F. E. Haarman, George Hutchinson and J. F. Stacy. They are represented by Attorney Louis Moos.

Guaranty Readjusts Schedules

NEW YORK, June 19—The Guaranty Securities Corp has made a number of changes in its rates for handling time payment business on cars and trucks. The new rates took effect June 15. An advance of 1 per cent has been made on all certificates of deposit, and the minimum charges have been advanced under four of the five purchase plans. The lowest minimum, under plan A for purchasing passenger cars, is unchanged at \$15; under plan E, covering the purchase of trucks, the minimum charge is now \$30; it was \$20. Farmers' notes, maturing at harvest time, have been discontinued and the company has also discontinued handling notes of single men between the ages of 21 and 30.

New Sales Buildings

DETROIT, June 16—The Firestone Tire & Rubber Co. will erect a building of four stories at a cost of \$500,000 in this city to be used for sales and stock purposes. The Cadillac Motor Car Co. will erect a sales building of seven stories at a cost of \$500,000. The Packard Motor Car Co. will erect a sales building of eight stories to cost \$1,200,000.

One Gallon Gas Tank



\$50,000.00

In U. S. Liberty Bonds
Will be Given Away

Two thousand Maxwell owners' cars in our dealers' gasoline economy contest on May 23rd proved that the Maxwell can do from 30 to 40 miles on one gallon.

Now for the great one gallon owners' contest open to all Maxwell owners, June 16 to June 30.

No matter what State you live in, or what the size of your home town may be, if you are a Maxwell owner you have the

Maxwell Owners' Chance to Win a Liberty Bond

This one gallon Maxwell owners' contest is open to every Maxwell owner. Every owner has an equal chance. The conditions are simple—here they are:—

1. You must own a Maxwell car.
2. You must register with your local Maxwell Dealer.
3. You are allowed one trial.
4. Your one gallon trial must be witnessed by three of your own neighbors who are selected by your local dealer.
5. Your local Maxwell Dealer must send your name and number of your car to us in Detroit and forward.
6. Contest open to women as well as men.

Register With Your Local Maxwell Dealer At Once

If you are a Maxwell owner, get ready to win a United States Government Liberty Bond.

Maxwell
Motor Sales Corporation
Detroit, Michigan

Maxwell is promoting an economy contest among owners, June 16 to 30. The winners get Liberty Bonds. This poster is distributed to dealers to be hung in the window

Motor Ambulances to be Made by Kentucky Firm

Louisville Gets Big Business Venture Calling for Several Thousand Cars a Year

LOUISVILLE, June 19—All motor ambulances hereafter bought for the United States Army will be assembled at the Kentucky Wagon Mfg. Co. in Louisville. The contract between the Government and the Louisville concern covers a period of years and specifies several thousand cars per annum. The parts of the ambulances, made by many factories, will be shipped to Louisville for assembling. The work will require the employment of scores of expert mechanics, in addition to those already connected with the Kentucky Wagon Manufacturing Company. Employees of the company, believing in reciprocity, have subscribed for \$30,750 worth of Liberty Loan bonds.

Hinchcliffe Gets Kissel

BOSTON, June 18—F. A. Hinchcliffe, who took on the Jordan a year ago, has now become also the New England distributor for the Kissel. Hinchcliffe will take over the Kissel building and market the Jordan and Kissel lines there.

Omaha Association Invests \$2,500 in Liberty Bonds

OMAHA, June 19—The Omaha Automobile Trade Association has subscribed for \$2,500 worth of Liberty Bonds. This is apart from the individual subscriptions of the members. The dealers have been active in Liberty Bond and Red Cross work and have furnished practically all of the cars used by the committees in these two activities.

Republic Truck Price Increase

ALMA, MICH., June 18—The Republic Motor Truck Co. has advanced the price of its three-quarter ton truck \$100 and will advance all other models as soon as the costs are definitely estimated.

Bosch Denies Rumors

Editor Motor World: Ever since the entry of this country into the war, various rumors affecting the Bosch Magneto Company have been in circulation, a number of them finding expression in print. It has been stated, for example, that the factories of the company were about to be closed down, that the company has been taken over by the Government, etc. It has been stated in print and otherwise that the Plainfield Works are to close down at once. This is not true, for while the production of starting apparatus will be suspended for the present, the company's orders and further prospective business indicate the necessity of continuing the Plainfield Works as an auxiliary in production to the manufactory at Springfield, Mass.—C. L. Schurz, President Bosch Magneto Co., New York.

Wall Is Chosen to Make "Tanks" and Army Trucks

National Vehicle Man Gets Commission as Major and Will at Once Engage in Work

INDIANAPOLIS, June 16—William Guy Wall, vice-president and chief engineer of the National Motor Car & Vehicle Corp., has been selected by the War Department to assume charge of designing and production of armored cars and "tanks" for the army. Following a trip to Washington last week, he accepted the offer of the Government and was at once commissioned a major by Secretary of War Baker. Wall has had military training. He is a graduate of the Virginia Military Institute and served as an officer in a volunteer company he raised for the Spanish-American War. He has several mechanical successes to his credit. He designed and built the first American made six-cylinder car, and was one of the first to sense the value and utility of the twelve-cylinder motor. He has been vice-president of the National company for 15 years. Major Wall will have his headquarters in Washington.

Marmon to Make Airplane Motors

INDIANAPOLIS, June 16—The Nordyke & Marmon Company to-day signed a contract for the construction of a one-story factory building, 100 x 350, to be completed in 60 days to provide additional facilities for the manufacture of aeroplane motors for the United States Government. Bids soon will be received for the construction of a second building of the same size.

For Airplane Standardization

NEW YORK, June 16—The Aircraft Manufacturers Assn. decided to undertake the work of establishing its own standards for the aircraft industry in co-operation with the Society of Automotive Engineers at a meeting here this week. The entire technical staff of the manufacturers in the association has been placed at the disposal of the stand-

ardization committee and the S. A. E. will be invited to have representation on the committee, which will proceed with its work at once.

Ainslie Gray Enters Agency Business

CHICAGO, June 18—Ainslie Gray, president of the Associated Business Papers, Inc., and Charles Benjamin have become associated under the firm name of Gray & Benjamin, and will conduct an advertising agency. Headquarters have been located at 301-2 Transportation Building, 608 S. Dearborn Street. Gray became widely known as managing editor of the Electrical Review and Western Electrician, and through his activities as president of the Federation of Trade Press Associations. Benjamin was for nine years advertising manager of the Cutler-Hammer Mfg. Co., Milwaukee, and during the past two years has been engaged in advertising work on his own account. The special function of the firm will be to eliminate waste in advertising effort and expenditure.

110 Mechanics to Go to France

WASHINGTON, June 16—The Government has selected 110 mechanics from automobile factories who will be sent to France to study the manufacture of aviation engines. Of these sixty-three are from Detroit and sixteen from Indianapolis. They will spend several months abroad and on their return will supervise airplane engine building here. In the great drive by the United States to place 4000 airplanes on the front next spring, 20,000 mechanics will be required. These will be drawn largely from repair shops and garages. Rapid progress is being made at the big Government aviation fields, especially that at Dayton, Ohio.

Paige April Profit \$105,909.32

DETROIT, June 16—Total assets of the Paige-Detroit Motor Car Co. on April 30 were \$4,165,191.22 and the net profit for the month was \$105,909.32. During that month sales totaled \$1,741,987.59, the number of cars shipped being 1749.

Some Day We'll All Fly, Says Indiana Professor

Airplane Will Eventually Supersede Car as Vehicle of Sport—Much Handier, He Says

INDIANAPOLIS, June 16—"The airplane will take the place of the automobile for sport eventually. People will become more accustomed to them as they become more numerous. They will be developed to assure safety and they will have the advantage of the automobile in that their successful operation will not demand the construction and maintenance of costly highways. The dangers of collision present in the automobile is removed in the airplane because the latter is a three-dimension machine, which can travel longitudinally, up or down, while the motor car can travel in only one direction."

This, in brief, is the opinion of Dr. Tobias Dantzig, instructor in mathematics at Indiana University, given in a paper read before the last meeting of the Indiana Section of the Society of Automotive Engineers. However, Dr. Dantzig does not believe that any good can come from standardization, because, he said, this would tend to limit development.

"I am opposed to the proposed standardization of airplanes," he said. "The airplane may be said to be just beginning to enter a stage of productive evolution, and to seek to standardize the parts now would mean that future development would be retarded greatly."

Following the address, Charles C. Crawford, chief engineer of the Premier Motor Corporation, entered into a discussion of Dr. Dantzig's remarks opposing the standardization of airplane parts.

"I don't think Dr. Dantzig understands this proposal to standardize airplane parts," said Crawford. "Such action is necessary now to meet war-time requirements, and even in peace times the standardization of parts would not retard development. Automobile parts are standardized—that is, we have accepted principles on which to work for a time—but despite this we are all constantly working for something better and when we make an improvement it is adopted as a part of the standardization. The development of the automobile has not been retarded as a result of standardization."

"The automobile industry is the one industry to develop the airplane," said Dr. Dantzig. "Motor car factories may easily be converted into airplane factories and, as far distant as such a policy may seem now, it is very probable that many automobile plants will be converted into airplane factories in a few months if the demands of the army and navy are to be met. Automobile engineers should begin now to study flying problems—you may need the knowledge much sooner than you expect."

Officers for next year were elected:

Any Good Salesman—Read This

OTHER things being equal, a salesman who knows *all about* the product he sells, and knows *a lot about the products his competitor sells*, too, is a better salesman than the next one.

That's what the specifications published in Motor World the first issue in every month are going to do for the good salesman—*make him a better one.*

These specifications cover about 18 pages. They give the intimate details of all (a) Passenger cars, (b) Motor trucks, (c) Tires and tubes and (d) Electrical equipment on modern cars.

The tables are corrected and brought up-to-date every month. *They constitute the most valuable stock in trade the salesman can have.*

Chairman, F. A. Cornell, assistant general sales manager of the Cole Motor Car Co.; vice-chairman, Charles S. Crawford, chief engineer of the Premier Motor Corp.; secretary, Frank E. Smith, Universal Motor Products Co.; treasurer, C. E. Jeffers, designing engineer, Nordyke & Marmon Co., and the fifth member of the board of directors, F. E. Moskovics, commercial manager Nordyke & Marmon Co.

Harroun Plant to Ship

WAYNE, MICH., June 18—The Harroun Motors Corp. commenced assembly of its product last Saturday and began shipment to-day. The first day's shipment amounted to 25 cars. The company now has all of its materials on hand and expects to continue a steady production. 500 men are now being employed at the plant.

Post Office Plans Wider Use of Trucks

WASHINGTON, June 18—The Post Office Department, in connection with what is already an established policy, the use of motor vehicles in the postal service is now ready to extend the use of motor machines to the star route service. This service is one which has to do with the carrying of mail in closed pouches from one post office to another, or from an office on the railroad to one not located on the railroad. Heretofore motor trucks have been used only in cities and in the rural service, or which carries mail to individual patrons. Beginning July 1 hundreds of motor vehicles will be put in use of star routes, advance notice of which is being given out by the department.

Maxwell Shipped 10,000 in May

DETROIT, June 18—The Maxwell Motor Co. produced and shipped 10,000 cars in May, a new record. On several days the shipments reached 500, the record daily output, however, being 626 cars. This company has started the employment of women in several branches of its manufacture.

G. E. Moves New York Office

NEW YORK, June 18—The General Electric Co. has removed its New York offices to the Equitable Building, 120 Broadway. They were formerly in the Hudson Terminal Building, 30 Church Street.

Ross To Reorganize

DETROIT, June 13—Plans are being perfected for the reorganization of the Ross Automobile Co. John L. Ross will take an extended vacation. H. D. Mackay is now general manager. The company will adopt a new policy which is to do no manufacturing, discontinue models K 25 and A, and assemble only model C, the Ross Eight. New officials of the company will be announced in the near future.

Wisconsin Garagemen's Lien Law Now in Effect

Provides That Property May Be Sold for Unpaid Bill—Excess Goes to the Owner

MILWAUKEE, June 18—Wisconsin's new garage lien law, known as Chapter 367, Laws of 1917, has been approved by the Governor and is now in effect. It reads as follows:

"Every keeper of a garage or repairshop who alters, repairs, or does any work on any detached accessory, fitting or part of an automobile, motorcycle, or other similar motor vehicle or bicycle, at the request of the owner or legal possessor thereof, shall have a lien upon and may retain possession of any such accessory, fitting or part until the charges for such alteration, repairing or other work have been paid. If such debt remains unpaid for six months or more, any such keeper of a garage or repairshop may sell such detached accessory, fitting or part at private or public sale, and the proceeds, after first paying the expenses of the sale, shall be applied in payment of the debt, the balance, if any, to be paid over to the county clerk of the county where the sale is held, in trust for the debtor. Before any such sale is held, notice in writing must be given the debtor of the amount due and the time and place of sale. If the debtor's residence is known, such notice must be mailed to his last known street address. If the debtor's address is unknown, such notice must be given by the posting thereof in the county court house of the county, or the city, village, or town hall where the said keeper of such garage or repairshop resides. This act shall take effect upon passage and publication."

Olds Price Up \$100

NEW YORK, June 18—The Olds Motor Works, Lansing, Mich., will raise its prices on all models July 1. On that date the eight-cylinder model will be listed at \$1,467 for the 5- and 7-passenger and Club roadster models; the five-passenger six-cylinder model and the 2-passenger roadster will be listed at \$1,185.

Car	Model	Old Price	New Price
Oldsmobile 8, 5-Pas.....		\$1,295	\$1,467
Oldsmobile 8, 7-Pas.....		1,367	1,467
Oldsmobile 8, Club-Rdstr.		1,295	1,467
Oldsmobile 6, 5-Pas.....		1,095	1,185
Oldsmobile 6, 2-Pas.....		1,095	1,185

Permalite Takes in W. L.

INDIANAPOLIS, June 16—The consolidation of the Permalite Corp., Indianapolis, and the W. L. Battery Co., Poughkeepsie, N. Y., has just been completed. The company will be known as the Permalite Storage Battery Co., Inc., and will have offices both in Poughkeepsie, where the batteries will now be manufactured, and at Indianapolis. The company is establishing depots in all parts of the country for the exchange of batteries under the plan, which permits a Permalite user to exchange his battery as often as necessary, for life, for a perfect, fully charged one, at a stand-

ardized fee which amounts to about the same as that for a charge. The Poughkeepsie plant will be under the supervision of W. L. Wright, formerly with the W. L. Battery Co.

Carhart Incorporates for \$500,000

OKLAHOMA CITY, June 18—The Carhart Motor Co. has been incorporated with a capital stock of \$500,000 to distribute Willys-Overland cars in the state of Oklahoma. E. R. Carhart is president, other officers being: vice-president, E. K. Slack; secretary, E. K. McKissick.

Sessions Makes Additions

TORRINGTON, CONN., June 18—The Sessions Clock Co. has awarded the contract for several additions to its plant. These will include a three-story building, 120 x 50; a four-story building 120 x 40; and a one-story building 160 x 40.

Ajax Earns \$300,000 in Month of May

NEW YORK, June 15—Net earnings of the Ajax Rubber Co. for May were \$319,588, or at the rate of \$3,835,044. For the 5 months ended May 31 net earnings were \$1,102,684, or at the annual rate of \$2,646,444. The returns for May were the largest in the history of the company for a similar period. For the 5 months the company earned \$7.76 a share on its stock, or at the annual rate of \$18.60 per share. At a meeting of the board of directors last Tuesday, it was decided to appropriate \$450,000 for improvements, additions, etc., in order that the capacity of the plant may be increased. The company is now over 100,000 behind its deliveries of tires and tubes. Less than 3 per cent of the tires manufactured by the Ajax company go to the manufacturers, the rest being sold direct to the public. The company has also decided in favor of buying \$100,000 worth of Liberty Loan bonds. This is in addition to \$30,000 or \$40,000 subscribed for by employees of the Ajax company.

Overland Will Soon Announce Increase

TOLEDO, June 13—The Willys-Overland Co. is informing its dealers that it will shortly announce a definite price increase. The increase is due to the increasing cost of materials and labor, which is being experienced by the entire automobile industry.

Lottridge Gets U. S. Truck

ATLANTA, June 18—John Lottridge, who for three years was general manager for Cuyler Lee, Packard distributor in San Francisco, has taken over the distribution of the United States motor truck for the entire state of Georgia. Samuel S. Slaughter will have charge of sales for the John Lottridge Motor Sales Co.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

E. A. McKee has resigned from Maxwell Motor Co., Inc., and joined the F. B. Stearns-Knight Co., Cleveland. He will handle Michigan and Indiana territory.

F. M. Hunt, city salesman for the Sutcliffe Reo Auto Co., Waterloo, Iowa, has resigned to accept a position in Chicago.

D. B. McCoy has been appointed advertising manager of the Olds Motor Works, Lansing. McCoy was with the Oakland Motor Car Co. for a number of years and previously was assistant manager of the Kansas City branch of the Buick Motor Co.

A. L. A. Spetler, who has been manager of the Michigan branch of the Michigan Oldsmobile Co., wholesale Oldsmobile distributors for several states, has been made division sales manager of the Olds Motor Works, Lansing. Spetler's territory comprises the Central States and extends from Ohio to Colorado and from the lakes to the gulf. His headquarters will be at the factory.

G. E. Toole has been put in charge of the service organization of the Wetmore-Quinn Co., Detroit. He was formerly production manager of the Champion Motors Co., Fulton, Ill.

Edward Lingenfelder, for eight years manager of the Los Angeles branch of the Good-year Tire & Rubber Co., has resigned and will open a tire supply house under his own name.

Charles R. Porter, for a number of years identified with the motor truck trade in St. Louis, has been named salesmanager for the Globe Motor Truck Co., East St. Louis, Ill.

Matthew F. Morese, formerly secretary of the St. Louis Automobile Club and recently office manager in St. Louis for the White Co., is in training for an army commission at Fort Riley, Kan.

Alex Steiner, manager of the Vellie Automobile Co., St. Louis, has been summoned to Fort Riley, Kan., for training for a commission in the army.

E. J. Sullivan, who has been associated with the Maxwell Motor Sales Corp.'s New York branch for the past couple of years, has just been appointed Assistant Sales Manager.

J. A. Coy, manager of the Buffalo branch of the Buick Motor Co., has been transferred to the Detroit branch, succeeding C. C. Starkweather as manager. J. H. Browning, of the Chicago branch, is taking Coy's place in Buffalo.

C. W. Miller has been appointed general manager of the Michigan plant of the Detroit Steel Products Co. of Cleveland.

R. E. Updegraff has been appointed designing engineer in the Transformer Department of the Packard Electric Co., Warren, O.

James P. Ward, formerly secretary of the Nashville Business Men's Association, has been made sales manager in charge of the tractor business for King Sparks, Nashville distributor of Smith Form-a-Truck and Smith Form-a-Tractor for 37 Middle Tennessee Counties.

Carl W. Burst, St. Louis, has been made general superintendent of factories for the Moon Motor Car Co., St. Louis, succeeding R. L. Cleveland, who has been made manager of the Chadwick Six factory.

C. E. Hughes, St. Louis, of the Indiana Refining Co. staff, has been made Western territory representative of the Imperial Oil Co. of St. Louis, with headquarters at Kansas City.

W. R. Tracy, assistant sales manager of the Oakland Motor Car Co., Pontiac, is going to Cleveland to take over the Ohio territory for the distribution of Oakland cars. A dinner was tendered to Tracy by executives of the Oakland company this week at the Detroit Athletic Club.

Clarence Schneider has been appointed superintendent of the Titan Motors Corp., Detroit. He was formerly production manager of the Parker Rust Proof Co.

B. S. Chamberlain, formerly traffic agent of the Grand Rapids Board of Commerce, is now traffic manager for the United Motors Co., Grand Rapids.

L. A. Bachman has been appointed assistant purchasing agent of the J. C. Wilson Co. He was formerly city buyer for the Chalmers Motor Co.

Donald Schachinger has been appointed manager of the body building department of the Porter Mfg. Co., Ann Arbor, Mich. He was formerly with the Griswold Body Co.

L. R. Pittman, Seattle, formerly a dealer in Everett, Wash., has been named sales manager for the Pacific Motors Co., Elgin and Harroun distributor.

J. H. Williams, Seattle, has become sales manager of the newly organized Gersix Motor Truck Co.

Motor Securities Quotations

	June 16, 1917	Bid	Asked
*Ajax Rubber Co., com.	70	71	
*J. I. Case T. M. Co., pfd.	84	85	
Chalmers Motor Co., com.	9	13	
Chalmers Motor Co., pfd.			
*Chandler Motor Car Co.	88	92	
Chevrolet Motor Co.	54	59	
Fisher Body Corp., com.	34	36	
Fisher Body Corp., pfd.	87	89	
Fisk Rubber Co., com.	77	77	
Fisk Rubber Co., 1st pfd.	103	106	
Fisk Rubber Co., 2nd pfd.	92	95	
Firestone Tire & Rubber Co., com.	123	125	
Firestone Tire & Rubber Co., pfd.	105	107	
*General Motors Co., com.	111½	112	
*General Motors Co., pfd.	88	90	
*B. F. Goodrich Co., com.	52¾	53	
*B. F. Goodrich Co., pfd.	106½	108	
Goodyear Tire & Rubber Co., com.	193	196	
Goodyear Tire & Rubber Co., pfd.	106	108	
Grant Motor Car Corp.	3	5	
Hupp Motor Car Corp., com.	3	4	
Hupp Motor Car Corp., pfd.	72	80	
International Motor Co., com.	5	10	
International Motor Co., 1st pfd.	30	50	
International Motor Co., 2nd pfd.	10	20	
*Kelly-Springfield Tire Co., com.	49½	54	
*Kelly-Springfield Tire Co., 1st pfd.	88	93	
*Lee Rubber & Tire Corp.	18½	19½	
*Maxwell Motor Co., Inc., com.	49½	50½	
*Maxwell Motor Co., Inc., 1st pfd.	65	67½	
*Maxwell Motor Co., Inc., 2nd pfd.	31	32	
Miller Rubber Co., com.	185	194	
Miller Rubber Co., pfd.	102	105	
Packard Motor Car Co., com.		151	
Packard Motor Car Co., pfd.	95	98	
Palge-Detroit Motor Car Co.	29	31	
Peerless Truck & Motor Corp.	16	18	
Portage Rubber Co., com.	140	150	
Portage Rubber Co., pfd.			
Regal Motor Car Co., pfd.		22	
Reo Motor Car Co.	28	29	
*Saxon Motor Car Corp.	30	32	
Springfield Body Corp., com.	52	57	
Springfield Body Corp., pfd.	110	117	
Standard Motor Construction Co.	12	13	
Standard Parts Co.		86	
*Stewart-Warner Speed Corp.	74	75	
*Studebaker Corp., com.	82½	82½	
*Studebaker Corp., pfd.	101	101	
Swinehart Tire & Rubber Co.	65	70	
United Motors Corp.	28	28½	
*U. S. Rubber Co., com.	61½	61½	
*U. S. Rubber Co., pfd.	107½	107½	
*White Motor Co.	46	47	
*Willys-Overland Co., com.	30½	31	
*Willys-Overland Co., pfd.	93	95	

*At close June 16, 1917. Listed N. Y. Stock Exchange.
†Par value \$10.

Boston Dealers Declare Patriotic Leg Was Pulled

So They've Quit Loaning Demonstrating Cars to "Get Laundry" for "Captain Jinks"

BOSTON, June 16—Chester I. Campbell, secretary of the Boston Automobile Dealers Association, has resigned as chairman of the Massachusetts Preparedness Committee's motor division, and thereby hangs a tale. When it was first organized, Campbell was chosen to handle the automobile division to secure cars for emergencies, etc. Things seemed to go along very well for a while, and patriotic people loaned their cars for various work.

Then there began to be a decline in the offers, and so the S. O. S. was sent out to the dealers summoning them to the State House for a conference. The needs of motor vehicles were outlined and it was expected that there would be a ready response. It was not forthcoming. The automobile men said they were willing to do their share in emergencies, but there did not seem to be any just then. They left the conference without binding themselves to supply machines except when real necessity arose.

J. W. Bowman of the Daniels, in expressing his view of it, said that he could not see his way clear to placing a car and driver at the disposal of Captain Jinks to send his orderly after his laundry; for Major Blink to send his family to the theater; for Colonel Kink to go to the tailors to be measured for a new uniform, etc., when he needed the car for demonstrating purposes, and in view of the fact that the Government was raising a lot of taxes, and fuel, tires, etc., were getting higher. He thought the taxicab company should be patronized.

Pittsburgh Jeffery Dealers Dine

PITTSBURGH, June 16—L. G. Martin & Son, Jeffery distributor, last week gave a luncheon to about 30 dealers from points throughout Western Pennsylvania, Ohio and West Virginia. C. B. Voorhees, sales manager of the Nash company, came from Kenosha, Wis., and delivered an address. He pointed out that there was no occasion for automobile dealers to feel alarm because of the war conditions.

Business Booms in Bridgeport

BRIDGEPORT, CONN., June 16—Apparently war has boomed business in Bridgeport during the past 2 months. A canvass of various dealers shows an increase of 12 per cent over the corresponding months last year. Dealers believe that this condition is partly due to the fact that Bridgeport is a munition center and its workers are skilled mechanics and capable of making wages large enough to enable them to purchase machines. Bridgeport's population has about doubled in the past 5 years.

St Louis May Business Satisfies the Dealers

Cool Weather Caused Slowing Up, Though There Were General Gains—Money Is Plentiful

ST. LOUIS, June 16—The monthly business report of the Federal Reserve Bank of this district, made public last week, noted a slight letup in the volume of mercantile business, due chiefly, it said, to cool weather and the campaign for economy. It stated, however, that business conditions were healthy and money plentiful, as indicated by the subscriptions for the Liberty Loan. A going ahead in business is anticipated as soon as the Liberty Loan deal is closed and the weather becomes seasonable. St. Louis dealers assert they have had a satisfactory business during May. Some of them are willing to put it into figures. Here are some: The Tate-Gilham Motor Car Co. sold 99 Dodge cars against 79 in May, 1916; the Weber Implement & Automobile Co. sold 27 more National, Hupmobile and Maxwell cars than during May, 1916; the Lewis Automobile Co. sold 30 Chandlers in May against 21 a year ago; the More Automobile Co. sold 22 Marmons during May, the best Marmon month in St. Louis; the Newell Motor Car Co. sold 21 more Haynes and Dort cars than during May, 1916; the Kardell Motor Car Co. says that Reo car sales were 20 per cent higher for May this year than last.

Columbus Preparing for Speedway

COLUMBUS, June 16—With preliminary plans completed, the Columbus Motor Speedway and Horse Racing Co., newest entry into the Columbus amusement field, is ready to renew its financing campaign. The company has an authorized capital stock of \$200,000, all common, and proposes later an addition of \$300,000. The company is headed by Colonel John Y. Bassell, chairman of the Columbus Conventions and Publicity Association, one of the pioneers in establishment of baseball in Columbus and an enthusiastic and effective leader in the move to secure the proposed coliseum and auditorium for Columbus.

The proposed project is a combination speedway, two race courses and a steeplechase course. The 200-acre tract is three miles from the center of the city, is reached by two street car lines, several paved streets, several well-graded pikes from the surrounding country, a steam railroad and two interurban lines.

New Buick Six at \$1,385

FLINT, June 16—The Buick Motor Co. has brought out a new six-cylinder, seven-passenger car carrying a three-point suspended block engine of 3½ by 4½-in. bore and stroke in a 124-in. wheelbase chassis, and selling for \$1,385. Valves are large and mounted in cages in

accordance with the Buick overhead valve construction. Oiling is by circulating splash, and cooling, which is by pump, is thermostatically controlled, and the electric system is a Delco single-unit type. The clutch is a multiple disk dry plate and gearset is three-speed selective. The rear axle is a Weston-Mott floating design carrying the entire load on the housing, with the differential mounted on large Timken roller bearings. Drive is by inclosed shaft with a single self-oiling universal to spiral bevel gears. Service brakes are internal contracting. Timken roller bearings are used in the front wheels. Rims are demountable and tires are 34 x 4½ straight side. Rear springs are the special Buick floating cantilever type, with semi-elliptics in front, aided by shock absorbers. Equipment includes: One-man type top, rain-vision windshield, speedometer, clock, horn, lamps, etc.

Fisk Bids for Gibney

PHILADELPHIA, June 16—An offer has been made by the Fisk Tire & Rubber Co. for the purchase of the Gibney Tire & Rubber Co., of Conshohocken, Pa., now in the hands of a receiver. It is reported that at least two other concerns of national importance have made offers. There is reason to believe, however, that the Gibney company will bid for the purchase of the company and that its bid will be higher than the rest. The bids will be submitted to the U. S. district court in this city about June 25, and final adjudication will be made on July 10. The branch office of the Gibney company will be vacated in a few months and the building will be taken over by the Gaul, Derr & Shearer Co., accessory jobbers now located in the adjoining property. Both buildings will be retained by the latter company.

Eclipse Wins Starter Drive Suit

NEW YORK, June 16—A decision has been rendered by the U. S. circuit court of appeals in favor of the Eclipse Machine Co., Elmira, N. Y., and Vincent Bendix, Chicago, in the appeal of the suit brought against them by the Bijur Motor Lighting Co., Hoboken, N. J. This decision by Judges Coxe, Ward and Hough upholds the decision of Judge Hazel in the U. S. district court for the western district of New York, handed down in July, 1916. The suit was brought by the Bijur company in 1914, charging infringement by the Bendix gear used in motor starting apparatus of patent No. 1,095,696 granted to Joseph Bijur in May, 1914, and covering a starting motor gear.

Ford Production for May

DETROIT, June 13—The Ford Motor Co.'s production for May is 83,616 cars, which is an average 3216 per day, which is better than two cars a minute. May 19 was the biggest day in the month, turning out 3496 cars. Ford is also making 2500 ambulances for the United States Government.

Philadelphia Garages Form an Organization

Charles Meiswinkle Heads Body, Which Starts with 75 Members— Aim Shaft at Price-Cutting

PHILADELPHIA, June 16—The Philadelphia Garage Association has been organized as a result of growing evils in the trade here. Several meetings have been held and a permanent organization has been effected. The officers of the new body are: President, Charles Meiswinkle, Colonial Garage; vice-president, H. H. Cummings, Twentieth Century Garage; secretary, Mark White, Ebert's Broad Street Garage; treasurer, Harry Eberts, Ebert's Broad Street Garage.

The seventy-five men comprising the association are determined to eliminate the unfavorable conditions with which the trade is beset, and to substitute a spirit of co-operation for one of unprofitable competition. The biggest evil recognized by the association is that of price cutting. It is proposed to reach some sort of understanding where this will not be possible.

Action will be taken at the next meeting to organize local associations throughout the city to be known by the names by which the different sections of the city are usually designated.

A further purpose to which the association has dedicated itself in its program for greater profits is to foster the movement undertaken by a local accessory supply house in establishing accessory stores in all garages. It is recognized that it is a matter of time only when the accessory jobbers will discontinue the retail end of the business, and to prevent the cut price stores from getting the resulting trade an effort will be made to have all garages prepare for the new business.

Gersix Truck From Coast

SEATTLE, June 16—Plans for the coming year in which the Gersix motor truck will be manufactured and marketed in Seattle by the Gersix Motor Truck Co. were laid during the past week, when representatives of all departments of the new organization met for a two-hour "round table" conference. Among those who attended the conference were: E. K. Worthington, Seattle capitalist; George E. Morford, R. L. Saunders, manager; J. H. Williams, sales manager; A. A. Hoover, sales department; A. B. White, superintendent; W. G. Gray, purchasing agent; Harry Prentice, service manager; Arthur Pease, head tester; Lee Weeks and Arthur Smith, mechanical department.

Lenses Coming From Ohio

WESTERVILLE, OHIO, June 16—The Culver Co. has been organized to manufacture and sell the Culver lens for automobile headlights. J. W. Crawford is general manager.

Revisions Are
Made in Table
Every Week

MOTOR WORLD GUIDE

Specifications
of the
Leading Cars

Model	Motor	S. A. B.	Ignition	Carburetor	Shifter	Clutch	Gearset	Wheelbase	Truss	Rims	2-Door	3-Door	7-Door	Coupe	Sedan	Limousine	Detachable Top
ABBOTT	6-31x4 25.3 Remy		Stmberg	Remy	DP 3 122	32x4	SS	1206	1206	1206	1206	1206	1206	1206	1206	1206	1206
6-40	6-31x4 29.4 Remy		Stmberg	Remy	DD 3 113	34x4	SS	1586	1586	1586	1586	1586	1586	1586	1586	1586	1586
ALLEN	4-31x5 22.5 Wehs		Stmberg	Wehs	C 3 113	32x4	SS	1686	1686	1686	1686	1686	1686	1686	1686	1686	1686
AMERICAN-SIX	6-3 25		Zenith	G & D	D 3 123	32x4	SS	1286	1286	1286	1286	1286	1286	1286	1286	1286	1286
ANDERSON	6-31x4 25.4 Wehs		Zenith	Wehs	DP 3 120	32x4	SS	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186
APPELSON	6-31x5 23.8 Remy		Rafid	Bljor	DP 3 130	32x4	SS	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
6-17	8-31x5 33.8 Remy		Johnson	Bljor	DP 3 130	32x4	SS	1146	1146	1146	1146	1146	1146	1146	1146	1146	1146
AUBURN	6-31x5 23.4 Remy		Rafid	Remy	DP 3 120	34x4	SS	1136	1136	1136	1136	1136	1136	1136	1136	1136	1136
6-39	6-31x5 20.4 Deleo		Rafid	Deleo	DP 3 121	32x4	SS	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786
AUSTIN	12-31x5 39.6 Deleo		Stmberg	Deleo	D 6 143	34x4	QD	3760	3760	3760	3760	3760	3760	3760	3760	3760	3760
BIDDLE	4-31x4 22.5 Dixie		Zenith	G & D	DP 4 122	32x4	QD	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
BOUR-DAVIS	6-31x4 25.3 Remy		Stmberg	G & D	DP 3 118	32x4	QD	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260
BREWSTER	4-4 25 25.6 Bosch		Zenith	U. S. L.	C 3 126	34x4	SS	1660	1660	1660	1660	1660	1660	1660	1660	1660	1660
BRISCOE	4-31x4 16.3 Conn		Mayer	Splidder	C 3 106	30x4	QD	725	725	725	725	725	725	725	725	725	725
8-24	8-31x4 23.8 Remy		Zenith	Apico	C 3 114	32x4	QD	11045	11045	11045	11045	11045	11045	11045	11045	11045	11045
4-38	4-31x4 18.9 Remy		Mayer	Apico	C 3 114	32x4	QD	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845
BUICK	4-31x4 18.2 Deleo		Marvel	Deleo	C 3 106	31x4	C	660	675	660	675	660	675	660	675	660	675
CHALMERS	6-31x4 25.3 Deleo		Marvel	Deleo	C 3 115	34x4	SS	1040	1070	1040	1070	1040	1070	1040	1070	1040	1070
6-44-47	6-31x4 27.3 Deleo		Marvel	Deleo	DD 3 124	34x4	SS	1385	1385	1385	1385	1385	1385	1385	1385	1385	1385
CADILLAC	8-31x5 31.2 Deleo		Own	Deleo	D 3 123	37x5	SS	12240	12240	12240	12240	12240	12240	12240	12240	12240	12240
65	6-31x4 21.2 Deleo		Own	Deleo	D 3 123	37x5	SS	11190	11190	11190	11190	11190	11190	11190	11190	11190	11190
CASE	4-31x4 21.0 Conn		Rafid	A-Lite	C 3 120	34x4	QD	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
CHALMERS	6-31x4 25.4 Remy		Stmberg	Wehs	DP 3 117	32x4	SS	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
6-30	6-31x4 25.4 Remy		Stmberg	Wehs	DP 3 117	32x4	SS	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
CHANDLER	6-31x5 29.4 Bosch		Rafid	G & D	D 3 123	34x4	SS	1595	1595	1595	1595	1595	1595	1595	1595	1595	1595
17	4-31x4 21.7 Conn		Zenith	A-Lite	C 3 102	30x4	C	535	550	535	550	535	550	535	550	535	550
CHEVROLET	4-31x4 21.7 Remy		Zenith	A-Lite	C 3 106	33x4	SS	875	875	875	875	875	875	875	875	875	875
FA-3	8-31x4 36.45 Remy		Zenith	A-Lite	C 3 130	34x4	SS	1385	1385	1385	1385	1385	1385	1385	1385	1385	1385
COLE	8-31x4 39.2 Deleo		Stmberg	Deleo	C 3 127	35x4	SS	11795	11795	11795	11795	11795	11795	11795	11795	11795	11795
CROW-ELKHART	6-31x5 19.6 Conn		Carter	Dyneco	D 3 114	32x4	SS	1895	1895	1895	1895	1895	1895	1895	1895	1895	1895
CR-35-36	6-31x5 33.8 Wehs		Zenith	Wehs	D 3 127	34x4	QDR	12800	12800	12800	12800	12800	12800	12800	12800	12800	12800
DANIELS	6-31x4 25.3 Deleo		Stmberg	Deleo	C 3 119	34x4	SS	1295	1295	1295	1295	1295	1295	1295	1295	1295	1295
DAVIS	6-31x5 29.4 Bosch		Stmberg	Deleo	C 3 124	34x4	SS	1686	1686	1686	1686	1686	1686	1686	1686	1686	1686
H & I	6-31x5 29.4 Bosch		Stmberg	Deleo	C 3 124	34x4	SS	1686	1686	1686	1686	1686	1686	1686	1686	1686	1686
DETROIT	6-31x4 25.3 Conn		Ball	A-Lite	D 119	33x4	SS	11250	11250	11250	11250	11250	11250	11250	11250	11250	11250
DISPATCH	4-31x5 22.5 Bosch		Rafid	U. S. L.	G 4 120	30x4	QD	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135
DIXIE FLYER	4-31x5 16.9 Conn		Carter	Dyneco	C 3 112	32x4	SS	1895	1895	1895	1895	1895	1895	1895	1895	1895	1895
DOBLE	2-71x54 double-acting steam engine. Boiler pressure 600-lb.																
DODGE BROTHERS	4-31x4 24		Stewart	N. E.	D 3 114	32x4	SS	895	895	895	895	895	895	895	895	895	895
DORRIS	6-4 25 38.4 Bosch		Stmberg	Wehs	D 3 123	34x4	SS	2475	2475	2475	2475	2475	2475	2475	2475	2475	2475
1-36	6-31x5 16.9 Conn		Carter	Wehs	C 3 105	30x4	QDC	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725
DONE	4-31x5 16.9 Conn		Carter	Wehs	C 3 105	30x4	QDC	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725
9																	

PARTIN-PALMER									
20	4-31x44	15.6 Conn	Schebler A-C	DD 3 96	25x44	C	645	...	...
32	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
33	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
34	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
35	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
36	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
37	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
38	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
39	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
40	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
41	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
42	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
43	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
44	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
45	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
46	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
47	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
48	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
49	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
50	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
51	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
52	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
53	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
54	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
55	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
56	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
57	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
58	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
59	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
60	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
61	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
62	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
63	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
64	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
65	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
66	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
67	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
68	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
69	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
70	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
71	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
72	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
73	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
74	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
75	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
76	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
77	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
78	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
79	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
80	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
81	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
82	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
83	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
84	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
85	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
86	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
87	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
88	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
89	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
90	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
91	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
92	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
93	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
94	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
95	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
96	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
97	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
98	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
99	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...
100	4-31x45	19.6 Conn	Carlier	DD 3 110	32x44	C	766	...	...

ABBREVIATIONS—"A.C." Allis-Chalmers, "L.N." Leeco-Neville, "Tilts" Tillotson, "Ator" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myers. NOTE—37x5 1/2" means that the rear tires are 37x5 1/2, and the front are smaller.

Studebaker Changes in K. C.

KANSAS CITY, June 16—The Studebaker Corp., chiefly because of rapid increases in retail motor car business in Kansas City territory, has recently taken over some of the retail companies, and is now handling the business as branch houses. The Kirkland-Daley Motor Co. has increased the retail sales in Kansas City more than 100 per cent in the past year. H. G. Kirkland of the firm recently bought A. W. Daley's interests in the company; and Kirkland then sold to the Studebaker Corp.

On June 1 Kirkland took charge of the retail sales as sales manager at the Kansas City branch. Fast expansion of business was also the reason for the corporation buying the business of the Randeau Motor Co., Oklahoma City. A factory branch has been established there under Kansas City jurisdiction, with L. R. Ellis in charge. The branch will handle retail sales in Oklahoma City, and distribution in Oklahoma west of Tulsa. The demands of the supply business were a factor in the establishment of the branch, the Oklahoma territory, with its increasing trade and large number of Studebakers in use, requiring quicker service than could be obtained even from Kansas City. A branch has also been established at Joplin, Mo., in charge of W. H. Watson, where a supply of parts and cars is carried.

Johnson Boosts Wages

RACINE, June 16—For the second time this year S. C. Johnson & Son have given a voluntary increase in wages throughout the entire organization. The payroll includes 250 men and women.

Picard Goes In for Statistics

NEW YORK, June 16—Statistical data are made a feature in the new catalog of A. J. Picard & Co. which has just

been issued. Aside from the usual parcel post data and maps, the book contains tables on battery sizes, bulb sizes for cars of 3 years, fuse and plug tables, fan belt sizes, piston ring sizes and other statistics. Cylinder head gaskets are both tabulated and illustrated.

Packard Gives Liberty Bonds as Prizes

DETROIT, June 16—The Packard Motor Car Co. has given Liberty Bonds to its salesmen as prizes, instead of money, in a new sales contest. The bonds the salesmen were urged to preserve as an investment. The contest ran from June 1 to 15. Every contestant had to sell two twin sixes before he participated; thereafter the awards of \$50 bonds were as follows: 3 sales, 2 bonds; 4 sales, 3 bonds; 5 sales, 4 bonds; 6 sales, 5 bonds; 7 sales, 6 bonds; 8 sales, 7 bonds.

New Napoleon Car

DETROIT, June 16—The Napoleon Motor Car Co., which is moving to Traverse City, Michigan, will manufacture a new model which has a 30 hp., four-cylinder, en bloc 3¼ x 5 Lycoming engine. The equipment of the car includes a dry disk clutch, Stewart vacuum feed, Zenith carbureter, Connecticut ignition, semi-floating Weston-Mott rear axle, Hyatt roller bearings, and 31 x 4 tires. Wheelbase is 112 in.; weight 2200 lb.

Kill Filling Station Tax

KANSAS CITY, June 16—The city council, in an effort to raise revenue, considered recently an ordinance to im-

pose a tax of \$100 a year on all filling stations and garage service pumps. It was estimated that there were 750 of these in the city. The ordinance was vigorously opposed by garagemen, especially by the recently organized association, and the ordinance was killed by the council committee considering it.

Brown County Dealers Organize

GREEN BAY, June 20—Dealers in Green Bay, DePere and other large cities of Brown County, Wis., who recently organized a trade association, have incorporated it under the name of Brown County Automobile Trade Association, without capital stock. The incorporators include R. C. Smith, M. E. Evans and E. G. Mohr. The objects of the association are to work for the best interests and mutual welfare of the motor car and accessory trade; to conduct shows, contests, etc.; support the good roads movement, and other interests for the good of the industry.

Packard Men to Cruise

DETROIT, June 16—Four hundred and fifty Packard factory men, dealers and salesmen will sail on June 18 for a cruise to Mackinac Island and thence to Sault Ste. Marie and through the locks and a short distance into Lake Superior. Twenty-five passenger car salesmen and an equal number of truck salesmen, who have made high selling marks in the Lincoln Highway Sweepstakes sales contest, will be guests of honor on the cruise, which will last 3 days. In addition, there will be a complete automobile show on board and during the cruise an organization convention will be conducted.

Coming—THE SHOW CALENDAR—Events**Shows**

Montreal, Can.....	Used Car Show, Coliseum.....	June 20-27
	Montreal Auto. Trade Assn., Ltd.; T. C. Kirby, Mgr.	
Spokane, Wash.....	Interstate Fair.....	Sept. 2-9
Milwaukee, Wis.....	Third Annual Fall, State.....	Sept. 9-15
	Fair Park, West Allis.	
Peoria, Ill.	Peoria Exposition and International Farm Congress and Soils Exposition, tractor display and demonstrations.	Sept. 18-29
Dallas, Tex.....	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 13-28
Washington, D. C....	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Cincinnati, O.....	Race.....	June 28
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.....	Championship.....	July 4
Tacoma, Wash.....	Championship.....	July 4
Visalia, Cal.....	Road Race.....	July 4
Spokane.....	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich..	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Rochester, N. Y.....	Hill Climb.....	July 14

Des Moines, Ia.....	Championship.....	July 14
Missoula, Mont.....	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.....	Intercity Reliability.....	July 17-19
	Intercity Reliability... American Auto. Assn.....	July 17-19
Anaconda, Mont.....	Track Race, R. A. Hiller, Mgr.	July 22
Great Falls, Mont.....	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.....	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.....	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J....	Track Race.....	Aug. 17
Elgin, Ill.....	Road Race.....	Aug. 18
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.....	Championship.....	Sept. 3
Red Bank, N. J.....	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.....	Hill Climb.....	Sept. 8
Providence, R. I.....	Championship.....	Sept. 15
Allentown, Pa.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.....	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
Uniontown, Pa.....	Speedway Races.....	Sept. 30
Uniontown, Pa.....	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.....	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.....	Race.....	Oct. 13
Richmond, Va.....	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13

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MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LI
No. 13

New York, June 27, 1917

Ten cents a copy
Two dollars a year



The illustration features a large Miller tire on the left. Inside the tire's circular frame, a man is shown holding a magnifying glass over his face, looking intently at the tire. The background shows a landscape with hills and a small car driving on a road. The Miller logo is visible on the tire's sidewall.

**YOU DON'T NEED A MAGNIFYING GLASS
TO FIND YOUR PROFIT ON MILLER TIRES**

THE Miller plan of selling Geared-To-The-Road Tires protects you against price-cutting and unfair competition of all kinds, because the Miller Plan gives you an exclusive territory whereby you make the profit on all the goods sold.

You can't make money or build up a business if you are selling the same brand of tires as the man across the street. Your profit and success in the tire business depends just as much on the sales plan back of the tire, as it does upon the quality of the tires themselves.

**BOTH THE GOODS AND THE SALES POLICY BACK
OF Miller GEARED TO THE ROAD Tires ARE RIGHT**

They are building consistent profits for dealers all over the country today; making successful merchants out of men who once upon a time believed there was no money in the tire business. They know differently now. Write for the Miller Plan today.

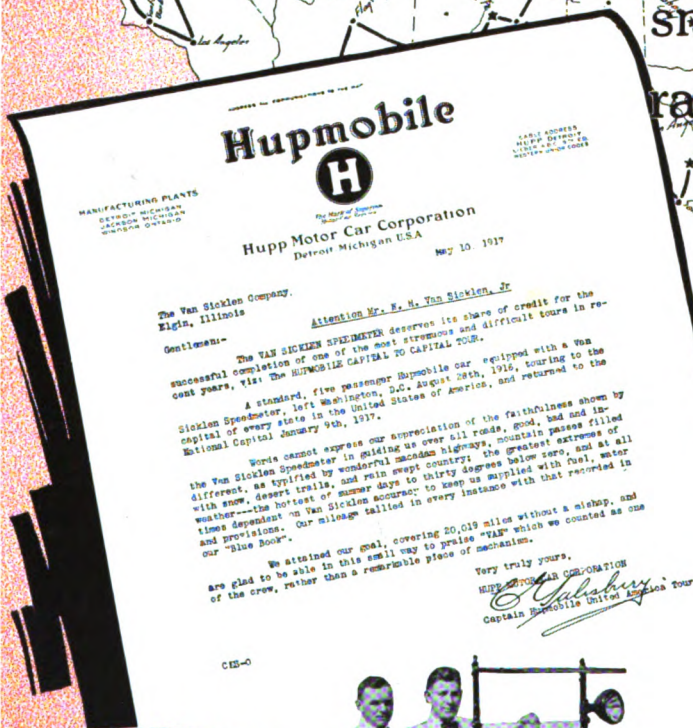
THE MILLER RUBBER COMPANY, AKRON, OHIO, U. S. A.

Van Sicklen +

HUPMOBILE

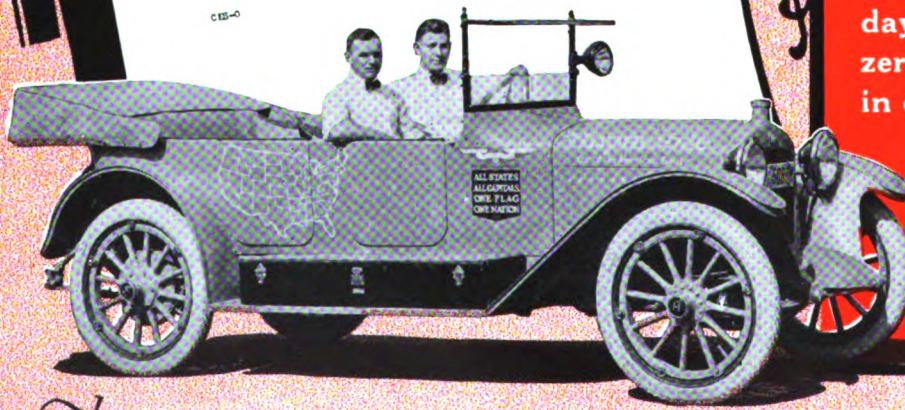
United America Tour

"Words cannot express our appreciation of the faithfulness shown by the Van Sicklen Speedometer in guiding us over all highways, mountain passes filled with snow, desert trails and rain-swept country ****"



"From hottest of Summer days to 30 degrees below zero*** Our mileage tallied in every instance with that recorded in our Blue Book."

Catalog of Van Sicklen Speedometers mailed on request.



The Van Sicklen Company - Elgin Illinois Factory - Elgin National Watch Co.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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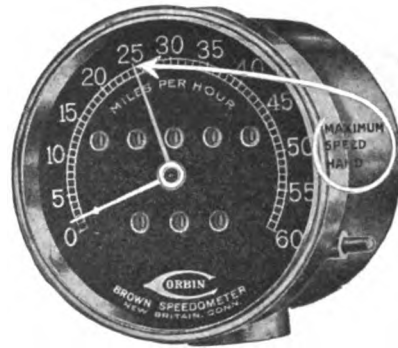
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 Nov., 1900

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We Have Considered Your Convenience in Constructing the

CORBIN-BROWN SPEEDOMETER

We feel safe in saying that it is the most perfectly adapted speed recording instrument for all-around service yet devised.

It remains accurate under all conditions.

Its mechanism is simple, strong and durable.

It is easily applied, convenient to read and handsomely finished.

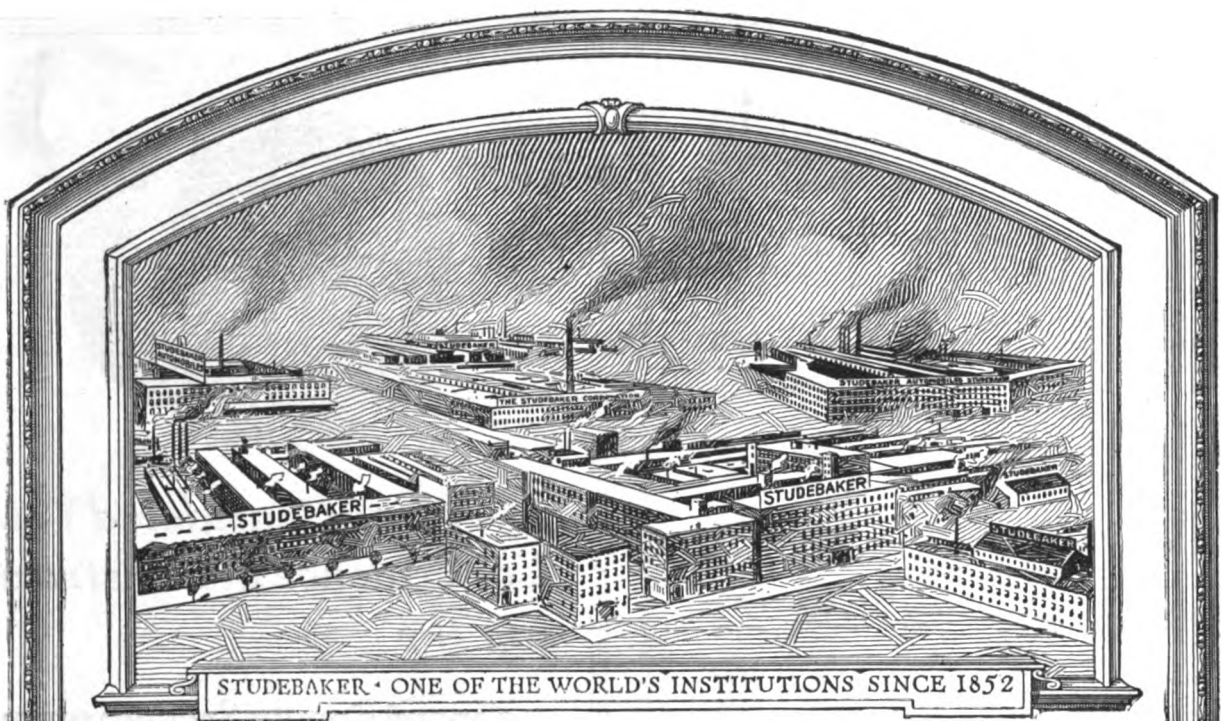
Added to these features is the Maximum Speed Hand Attachment. This device consists of a red hand which records the highest rate of speed and remains at that point until it is reset at zero. The necessity of constantly watching the speedometer is thus obviated.

You could do no better than equip the Corbin-Brown this Summer. See your dealer.

Catalog on request

The Corbin Screw Corporation
 THE AMERICAN HARDWARE CORPORATION, Successor
 NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
 Makers of Corbin Duplex Coaster Brakes for Bicycles



STUDEBAKER • ONE OF THE WORLD'S INSTITUTIONS SINCE 1852

Studebaker has built and distributed through Studebaker dealers more than 300,000 cars.

Every Studebaker dealer shares in the prosperity made possible by such great volume.



It pays to be a *Studebaker* dealer

When writing advertisers please mention Motor World—It identifies you

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LI

New York, U. S. A., Wednesday, June 27, 1917

No. 13

1911—\$95 in Cash 1917—\$200,000 Gross Business

The Story in Figures

July 1, 1911, borrowed from relatives.	\$1,000.00
Rent of site for first month..	\$5.00
Purchase of shop.....	500.00
Machinery and equipment..	400.00
	<hr/>
	905.00

Total cash when business was started. \$95.00
Total assets at beginning \$95 + Grit + Muscle + Brains.

Assets today: One of the biggest garages in the West. A business of \$200,000 a year—and growing. A clientèle that comes back because it likes to.

By Allen Sinsheimer

YOU do not have to be a certified accountant to understand the figures above. They are simple. They tell the BEGINNING of the story of Moutier Brothers who operate the Crown Auto Co. in Peoria, Illinois. There are now seven brothers in the business—there were two in the beginning.

In 1911 Robert and J. Louis Moutier were machinists in a large Peoria factory. They made a hobby of power boats. Soon everyone in Peoria knew them and recognized their mechanical ability. And the two brothers found themselves giving their spare time gratis to the repair of boat engines for their friends. Everyone who had trouble with his gasoline engine called upon them.

Grasping the NEED for good repairmen, they borrowed \$1,000 from a relative, rented an empty lot at a graduating rental beginning with \$5 a month, purchased a lot of old brick and lumber, built a shop for \$500, and equipped it at an additional cost of \$400.

When they opened shop ready for business they had \$95 in cash plus grit, muscle and brains.

In the beginning, the two brothers worked only upon motor boat engines. Their success led them into the motor car field. They needed help and took into the firm a brother just returned from the West. The business continued its growth and called, one by one, for each of the remaining brothers, the last to enter leaving a profitable advertising business for the automobile field.

To-day the seven brothers own the largest garage in Peoria, a large garage in another city, employ more than sixty workers besides themselves, transact a yearly business of more than \$200,000—and enjoy a profitable and comfortable livelihood from this venture that started six years ago with a working capital of \$95.

Their Crown Garage in Peoria holds 250 cars. It has storage space of 8½ ft. to each car with only two cars between posts 17 ft. apart. Aisles are 27 ft. wide and there is no need for see-sawing to drive to an exit. The entire building is of concrete and steel and the walls are

Reasons Why the Moutier Boys Have Won Out



ABOVE—Two of the Moutier boys started in this little shop in 1911 with only \$95 cash

- This is how it was done:
- 1—Each brother WORKS.
 - 2—Each brother THINKS.
 - 3—Every customer is treated as if he is **THE ONLY CUSTOMER**—and everything and anything is done to keep him satisfied.
 - 4—The slogan, **CLEANLINESS and ORDER**, is preached and practiced. All cars are lined up straight every night. All dirt and grease are removed from the floor every day.

BELOW—Their first expansion was in 1912, when they bought this building



RIGHT—In 1915 they took over the Fashion Garage and for a time ran two garages until they completed the big garage and sales building shown on the opposite page

painted white with fireproof paint, making the interior as bright as day. Ample space each side of the cars and wide aisles minimize the danger of damaging fenders and other parts through collision.

There is a mechanics' dressing room with eight enameled wash basins, steel lockers and sanitary drinking fountains. Good workmen appreciate these features. Without them it is necessary to be content with mediocre men.

Women or men patrons find special dressing rooms provided for their use.

An information booth, private telephone exchange, gasoline, oil and water and air station are in convenient locations for all.

And fire-doors, inclosed wash room, five-ton elevator and a special heating system are included to make up this public garage.

- 5—Service is talked, advertised and GIVEN. Every job is GUARANTEED. At least one brother is ALWAYS at the garage ready to help out with a tire change, a wreck call, an order for gasoline, and to supervise the force—AND TO PERSONALLY MEET EVERY CUSTOMER.
- 6—A one-price basis is maintained. Every customer is charged on the same basis.
- 7—Only highest-grade, first-quality parts and supplies are sold.

- 8—None but the highest skilled mechanics are employed.
- 9—Every necessary tool and machine is used to improve repair service. The repairshop contains a case-hardening furnace, welding outfits, decarbonizing outfits, gas brazing torches, air hammers and electric drills. Moutier Brothers know that a repair job depends considerably on the tools.
- 10—Honesty is always practiced. Customers are NOT sold new batteries, tires or carbureters if the old ones are still serviceable.
- 11—An efficient bookkeeping system is used. Every charge is entered. There are no quarrels with customers. Profits and losses are KNOWN.
- 12—Seasonable goods are pushed in season. Seat covers and tires are advertised in the spring—overhauling, carbureters and radiator covers are urged in the fall.
- 13—Tires are kept in steel shelves. They are convenient, away from oils and in view of the customers.
- 14—One of the brothers worked for six months at the Willard Storage Battery Co.'s plant without pay to learn the storage battery thoroughly. And the Crown Auto Co. now does one of the largest and most satisfactory



- storage battery businesses in Illinois.
- 15—One brother worked at the Dayton Electrical Laboratory learning the details of starting and lighting systems—and KNOWS that branch of the business thoroughly.
- 16—Another brother took a salesman's course at a motor car factory—and KNOWS how to sell cars. When a customer asks him about the carbureter, the crankshaft or any other part of the car he can talk intelligently about it.

The 7 Moutier Boys—and Dad

- 17—Two free service cars are always ready to extend aid to any driver within five miles of Peoria—free aid to anyone who needs a tire or other part.
- 18—A patron can have any kind of garage service. Complete service is rendered, including dead storage, live storage, call for and delivery, wash and polish, oiling and greasing cars, charging electric cars—and there are always seven skilled garagemen on the floor ready to give the service desired.
- 19—A technically trained salesman and demonstrator assists in motor car sales.
- 20—A wreck wagon is always ready to handle wreck jobs.
- 21—The brothers meet daily to discuss business, to improve service, to eliminate complaints, to plan for the future.
- 22—Each brother has his own individual department to look after. There is no confusion of orders, no contradictory system. Each must handle his complaints and service, and operate his department efficiently.
- 23—They handle but one make of car, and devote every effort to push that one.
- 24—Advertising is done extensively—by newspaper, mail and circulars.

They make use of the free pamphlets issued by makers. They print their name on them and send them out.

Every time more floor space at a new building was added they told the public how they were growing.

Letters were sent to country garages telling of their facilities for handling repairs and allowing special discounts to dealers.

A letter was mailed with postcard attached to car owners telling the qualities of the car they handle. The postcard when filled in stated that the car owner would like to know how he could trade in his old car for a new one; sixty-five of these letters were mailed—and three cars were sold in ten days.

A letter was issued on batteries. It told of



ANDREW G.
General Manager



WILLIAM A.
Electrical Supt.



ROBERT J.
General Supt.



FRANK L.
Night Supt.



ROLAND N.
Sales and Adv. Mgr.



BERTRAM G.
Business Manager



J. LOUIS
Le Roy Manager



N. J. (Father)
Credit Manager

a coming price advance—described the merits of the particular batteries—and brought in \$1100 in orders in 5 days.

A new type of non-skid tire was placed in stock. Letters were sent out and orders amounting to \$888 were received in 2 weeks.

To sell carbureters by mail, letters were issued telling of the COST OF GASOLINE—every car owner realized the high price of gasoline—every one understood what a saving of gasoline meant to his pocketbook—and by this appeal \$875 worth of carbureters were sold in 10 days.

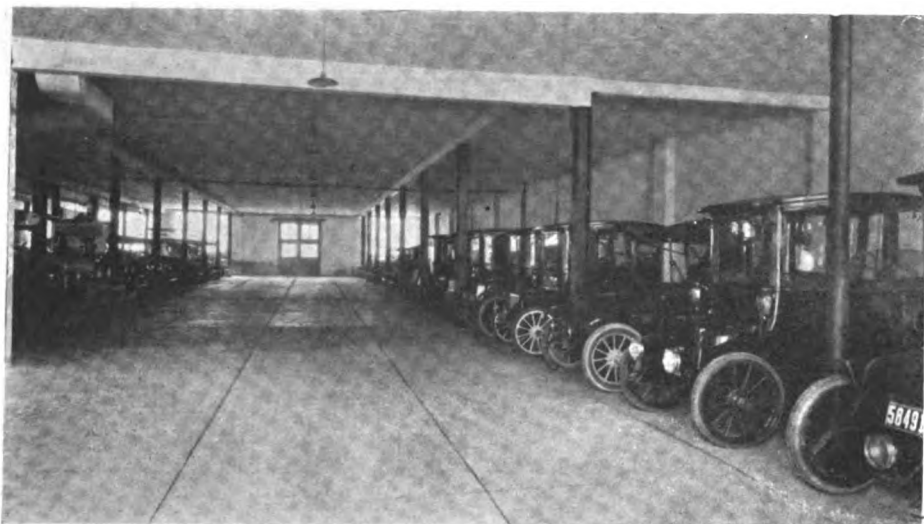
When tires increased in price a circular letter was mailed to all car owners. Every motorist needs tires. They need them often. And when they were told that tires would soon increase, they bought them; thirty-nine tires were sold the first day following the letters.

Dealers are also sold by mail. Letters are sent to them selling batteries, seat covers, tires.

A letter was mailed to car owners containing a card offering free advice, inspection and distilled water for batteries. The car

➔ 1917





WANT TO KNOW ONE REASON WHY THE MOUTIER BOYS SUCCEEDED? Look at the floor of the garage. Dollars never grow in dirt and they can be made to thrive on a floor like this

owner did not have to own a car or battery purchased from the Crown company. Anyone could secure the free service—and IT CREATED A HOST OF FRIENDS AND CUSTOMERS FOR THE COMPANY.

Every letter did not immediately offer to sell something to the car owner. One letter addressed to owners of a certain make of car told in the first three paragraphs how to drain a radiator and warned against the use

of anti-freezing solutions—the next advised the use of only high grade gasoline—and the following paragraph told how cheaply the car could be kept in dead storage at the Crown garage.

The company takes an interest in civic details. When there are parades it undertakes to secure many cars for the parades, offers prizes for the best decorated machines and aids in the decorating at its own expense.

Return postal cards attached to letters have been found profitable. A letter telling of the advance in batteries and carrying a blank postal card resulted in \$1800 worth of battery orders in 36 hours.

A follow-up letter with a postcard attached produced an additional business of \$1755 worth of batteries within 3 days.

Following the motor car show at Peoria a letter with postcard attached was mailed, thanking the public for making the show a success, calling attention to the popularity of the Jordan and asking the reader to fill out the postcard if interested; twenty-seven of the letters brought orders for 5 cars.

Dealers in the territory are reached by mail. They are sold Jordan cars by mail. If they fail to answer the first letter they receive a second and a third and a fourth. On one series of letters 132 dealers responded to the first letter out of 425; forty-seven dealers answered the second letter out of 275; the third letter asked the dealers to come to the show; fourteen came and nine closed contracts.

This story could continue almost indefinitely telling you how the Moutier Brothers have increased their business and how they secure profitable returns from their efforts both in person and by mail.

Elsewhere on these pages you will read some of their successful letters. Of course every dealer has not seven

BATTERY PRICES SOARING SKYWARD!!!

A week from to-day—April 1st—Starting and Lighting Batteries will again advance in price—approximately 15%.

"VESTA" STARTING AND LIGHTING BATTERIES

The most highly perfected Battery on the market. The latest type is equipped with "INDESTRUCTIBLE ISOLATORS," an exclusive "VESTA" feature, keeping plates "LOCKED APART," insuring against buckling or short circuit.

No Battery ever built has more advanced or distinctively valuable feature than this new type of VESTA.

LONGER LIFE—GREATER POWER AT LESS COST

We furnish you this new, highly improved VESTA Battery at a price lower than it would cost to repair your old Battery or in purchasing a new Battery of inferior make.

ORDER YOUR "VESTA"

Before April 1st

You'll pay more, if you don't. Positively no orders will be accepted at the old price after Friday night. Let us place your order before the first—you can pay for it later.

MAIL THE CARD ENCLOSED—NOW Fill it out and let us quote you on a New Vesta for your car; we allow you 50% discount off list price for your old Battery on the purchase of a new VESTA, the lowest-priced high-class Battery on the market.

If you prefer, call Main 1384—ask for R. N. Moutier. Better do it RIGHT NOW—next Saturday is the first.

Yours very truly,
CROWN AUTO CO.

A TIMELY WARNING to

ELECTRIC CAR OWNERS

Are you going to need new BATTERIES?

A SERIOUS SITUATION

Battery Manufacturers face a critical situation in the scarcity of material used in the construction of Vehicle Batteries. Another decided advance in price IMMEDIATELY is imminent.

SPECIAL "EXIDE" VEHICLE BATTERIES

You can buy CHEAPER Batteries than EXIDE, but no BETTER Battery at any price. You get exactly what you pay for in a Battery—as in Tires, Automobiles, or anything else in these turbulent times of Price advances.

THREE TO FOUR YEARS' SERVICE FROM "SPECIAL EXIDE" BATTERIES

We have supplied EXIDE Batteries to fifteen prominent Peorians within the past year. They would have nothing else—they KNEW the EXIDE capacity for Service—some of whom received close to four years' Service from their old EXIDES.

CALL MAIN 1384

Ask for the Sales Department. Let us quote you on new EXIDES, carrying an iron-clad guarantee of satisfactory Service for two years. If you wait—you may not be able to get a GOOD Battery at any price. BETTER DO IT RIGHT NOW.

Yours very truly,
CROWN AUTO COMPANY.
Sales Department.

3 Moutier Letters

THE LETTER AT THE LEFT brought in \$1,100 in orders in 3 days

THE CENTER LETTER sold 5 Exide sets at \$351 each in 3 days

THE LETTER BELOW brought in 4 orders for tires

SOME TIME—YOU WILL NEED TRUCK TIRES.

We want you to see our representative when he calls Saturday next, Sept. 11, to explain the Economy, Durability and Satisfaction in GOOD-YEAR Solid Truck Tires.

A UNIQUE GUARANTEE

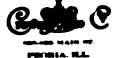
The SV type of GOODYEAR TRUCK TIRES carry an iron-clad guarantee "MONEY-BACK" (not adjustment) that it will outwear any other make of truck tire placed on the opposite wheel. SOME GUARANTEE—YOU'LL ADMIT.

We can "Save you Money" on truck tires and install them without the inconvenience of keeping your truck out of service.

Please grant us the favor of this interview and let us convince you quickly and unquestionably of the Economy and the Advisability of using GOODYEAR Truck Tires.

JUST MAIL THE INCLOSED POSTAL—NOW—Thank You.

Yours very truly,



"CROWN SERVICE"
MAINTENANCE DEPARTMENT
PEORIA, ILL.
LEROY FINCH

"TIRE"
Tire and Valve
Service

Washing
Carburetors

Rebuilding
Machinist
Tools

Rebuilding
Tools

"Tire"
Service

Rebuilding
Machinist
Tools

Rebuilding
Machinist
Tools

Rebuilding
Machinist
Tools

**TIRE PRICES
AGAIN ADVANCE**

On January 1st tires will again advance in price.
All the way from 10% to 20%

Last year when I got the top of the impending advance
I notified you. So LeRoy Finchem took the tip and
gave me orders for their future tire requirements.
Every one of them saved from \$10.00 to \$20.00

COME FROM YOUR TIRE
YOUR TIRE AND PAY FOR YOUR TIRE

Give me your order without fail on or before—
DECEMBER 25th (I'll pay them until you mail
and pay for them then—AT TODAY'S PRICES.

BETTER CALL US—
PHONE 25—

Several large Tire Companies have already announced
the advance effective January 1st. So get your order
in TODAY

DO IT TODAY
You'll have to Hurry

Yours very truly,
CROWN AUTO CO.
Manager

JLM

THE LETTERS shown on these two pages are sent out in much the style shown above. Many of them are printed and not filled in

THE SERVICE CAR.
The Moutier boys take pride in the fact that their widely known service car never struck a wreck that it couldn't "bring in"



brothers who can work co-operatively. Many dealers are forced to struggle along, unable even to find reliable help. *But no dealer is unable to follow many of the acts of the Moutier Brothers, which have helped to make them successful.*

Writing successful business letters,

maintaining good service, keeping the garage clean, working, thinking, establishing one price, carrying highest grade merchandise, and following many of the other practices of the Crown Auto Co. will spell the same quality of success for other dealers as it has for the Moutier boys.

3 Business Letters

THE LETTER BELOW helped fill the garage with business last winter

THE CENTER LETTER sold 5 cars

THE LETTER AT THE RIGHT brought in \$875 in orders in less than 10 days

A WINTER SUGGESTION TO ALL STEARNS-KNIGHT OWNERS.

To prevent your radiator and motor from freezing this Winter

1. Open pet cock under water pump and drain out water on right-hand side of motor.
2. Open small pipe plug at bottom of second cylinder, left-hand side of motor.
3. Avoid all Anti-Freezing solutions. They are injurious to motor, radiator and connections. One-third denatured alcohol and two-thirds water will protect your motor from freezing up to zero weather.
4. Use only high test Gasoline.
5. If you do not intend to run your car this Winter let us take care of your Storage Battery. For only 50c. monthly we keep it alive; it will freeze if left discharged in cold weather.
6. It would be wise to store your car in our heated garage. Charges as low as \$5 for dead storage and \$7.50 upward for live storage.

Strict adherence to these few pertinent suggestions will do much toward eliminating trouble and annoying difficulties usually encountered in Winter motoring.

If in doubt, or in need of advice, call Main 1384.

Yours very truly,
CROWN AUTO COMPANY.
Sales Department.

MR. T. NAFFSIGER,
Hopedale, Ill.

Dear Sir:

The most successful Auto Show ever held in Peoria is over: YOU helped to make it so.

The consensus of opinion of the ten thousand people who visited the Show was overwhelming in its genuine approval of the luxurious new JORDAN.

A constant—steady stream swarmed the JORDAN booth, they gazed—amazed at its exquisite beauty, its fashionably low body design, superb finish, its rich French genuine leather upholstery, its distinctive individuality.

YOU were impressed—YOU lingered and admired this handsome Motor creation—just as thousands did. It outgrew every other exhibit at the Show.

There is no question as to its Serviceability, its Durability, or its Capacity for the Performance you demand in a Motor car, embodying every high-grade unit endorsed by the American Society of Engineers, the most capable Judges of Motor car values in the World.

THE PRICE OF ALL JORDAN MODELS ADVANCES—APRIL 1st.

We urge you to place your order before that date and secure the benefit of to-day's low price.

There are no dissatisfied JORDAN owners. The glowing testimonials of ten of the largest JORDAN Dealers and our own experience prompted us to back the JORDAN to the limit.

FILL OUT THE INCLOSED POSTAL—it will not obligate you in the least to buy.

"The most Talked-of Car in America. The most Distinctive Car on the Road."

CROWN AUTO COMPANY.

R. N. MOUTIER,
Sales Department.

IT'S A QUESTION of DOLLARS and "SENSE"—

The present high cost of Gas!!!

And there is only one way—one "sensible" way to effectively combat the steady increase in price:

The new

"STROMBERG"

Carburetor.

Reduces Gasoline consumption 10% to 50%.

Increases POWER—SPEED—FLEXIBILITY.

Insures Quicker Acceleration and Easy Starting.

Reduces Carburetion troubles infinitesimally.

There is a distinct and specially designed "STROMBERG" built to meet the individual requirements of every car.

IT MEANS MONEY IN YOUR POCKET and

WE'LL GLADLY PROVE IT IN A THIRTY-DAY TRIAL TEST

Specially designed types

for

OVERLANDS HUPMOBILES FORDS

Let us install one of these new "STROMBERGS" on YOUR car. Keep it on for 30 days; THEN, if you are not immensely pleased in the more efficient performance of your motor we will remove it, refunding full purchase price, excepting labor.

READ THE ENCLOSED

"STROMBERG" LEAFLETS

You'll find them attractive, interesting and convincing. Come in and talk to our Carburetor expert; he can give you some mighty valuable tips on more efficient Carburetion, and will gladly explain the many distinctive features of this new "STROMBERG."

MAIL THE ENCLOSED POSTAL—TO-DAY

We'll BOTH be glad to-morrow if you do.

Readers—

A Word to You from Mr. Lindquist

S. W. LINDQUIST, who, with his brother Carl, runs the Porter Garage in Porter, Minn., has asked MOTOR WORLD for window display ideas. We have given him a few and now ask our readers to give Mr. Lindquist some more. Read his letter and then read the opposite page.

PORTER GARAGE
LINDQUIST BROTHERS, Props
AUTOMOBILES AND SUPPLIES
PORTER, MINNESOTA

*The Class Journal Co.,
New York City, N. Y.
Gentlemen:-*

Can you give me any new ideas in window trimming with Ford accessories? We carry a full line of Ford repair parts but it seems almost impossible to find a new display. Also can you suggest any way to display tires & tubes both alone & in combination with other accessories. I don't want anything too stocky as the window isn't large enough for that.

*Yours truly,
E. S. Lindquist.*

You Are Invited

To enter a window contest for the benefit of Mr. Lindquist. Knowing what he desires, set up in your window what you think would suit him best. Then have it photographed according to the suggestions on this page. The best picture—and as many others as possible—will be printed in MOTOR WORLD. There will be a prize of \$10, and only one. It is a sort of Lindquist Sweepstakes in Window Display.

What Lindquist Wants

- 1—Displays of Ford parts and accessories.
- 2—Tires and Tubes alone.
- 3—Tires and Tubes with other accessories.
- 4—Displays which are not too stocky, big or difficult.

We Suggest

- 1—That the displays be photographed at night by time exposure with the windows lighted. This is practically the only way a window picture can be taken.
- 2—Mark each picture on the back with the name of the company and the window trimmer.
- 3—With each picture send a letter telling how to set up the display. Be as brief but complete as possible.
- 4—The pictures should be unmounted.

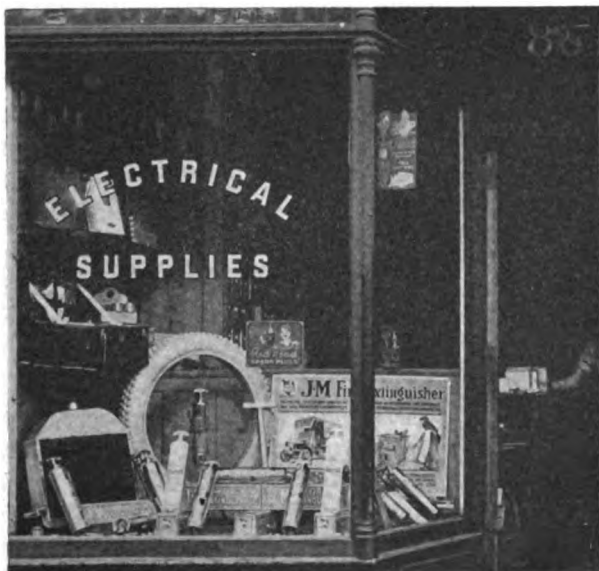
Remember This

Lindquist's window is 7 ft. wide. His garage is in a town of 300 people in the southwestern part of Minnesota. There are no department stores from which he may copy window ideas and the town does not offer the display facilities so easily obtained in large cities. Therefore, do not make the display difficult. Explain how the display is put together if a picture won't show the details.

As to the Prize

It wouldn't be a competition without a prize, would it? Therefore, MOTOR WORLD will give \$10 to the window trimmer who sends the best picture. And Lindquist is going to help us choose the best picture. The picture-taking should cost about \$2, according to our experience, and for each picture sent in MOTOR WORLD will pay this amount for the expense of photographing, provided the picture is taken at night as suggested above.

Try Some Like These



YEARS ago the oil men used to get kerosene out of crude oil, and the rest of the product was turned into the rivers as waste. It was a problem to dispose of this waste, and, as the oil business grew, States and cities placed restrictions upon this public scattering of oil over the creeks and rivers.

What did the oil men do to overcome this troublesome problem? They developed better methods of refining, and made lubricating oil, gasoline, naphtha, and other products. Most of the fortunes made in the oil business have been made from what was once a by-product, and the once principal part of the business is now the smallest.

This all happened because the oil men took hold of their by-product problem in a scientific, businesslike way.

The same thing happened in the packing business. It was a problem to dispose of those parts of the pig that can't be eaten. What did the packers do?

They took hold of their by-product problem in a scientific, businesslike way, and to-day are making millions from blood buttons, upholstery hair, brushes, glue from hoofs, fertilizer from bones, and other things.

Are the motor-car men less scientific and businesslike?

The car dealers have now the used-car problem. It's here, just like the waste of the packers and the oil men, and it **MUST** be met. Dealers have ducked and dodged, and tried to get around the used-car problem, but it **CAN'T BE DONE**.

The only solution—as **MOTOR WORLD** has found through a comprehensive investigation—is to take hold of the used car and master it, instead of letting it master you. For this purpose **MOTOR WORLD** presents a plan:

1—Make up your mind to take hold of this phase of your business in a scientific, businesslike way. Don't try to dodge it.

2—Make a profit on your used cars. The packer doesn't sell his by-products at a loss or a break-even, does he? Why should you?

3—Make your accounting system tell you the truth about your used cars. **KNOW** whether you're making or losing, and where and how much.

YOU Can Make Money on Used Cars

But to Do So You Must Use Right Methods

A Money-Making Method Is Described on This Page

Read It! And Use It!

4—Fix 'em or junk 'em. When you trade, take a car in at a price which will permit its being repaired and resold, or else take it in at a junk price. Don't sell any more of those as-izy rattletraps. Fix 'em up. If you sell a car as-is, and it gives the buyer trouble, he will blame you, and say bad things about you. He'll hurt your business. It doesn't make any difference if he did buy with his eyes open, he'll knock you just the same. Human beings are built that way. If you fix 'em up you can make a profit on them. Make them usable, not merely salable. The statements in this paragraph have been proved by successful dealers through experience.

5—Become a used-car expert. Study used cars just as you have studied new cars. Get to know values. If you go at this thing seriously you can easily become an expert. An expert is a being with a body, two arms, two legs, a head, and a brain, plus experience. You have everything except possibly the experience. Give serious attention to used cars, and you automatically become an expert.

6—Trade scientifically, not by guess. Used cars depreciate by fixed laws, just as a falling stone falls 32.2 ft. faster each second in a vacuum. It's a fixed law. The reason you are selling cars in North America to-day is due to fixed laws—which you can find in Buckle's History of Civilization.

7—When trading, first find the value of the car by the Used-Car Price Chart in the upper right corner on the opposite page.

8—Find what it will cost to fix it up and make it usable. For this work, use the Used Car Check Sheet in the upper left corner of the opposite page.

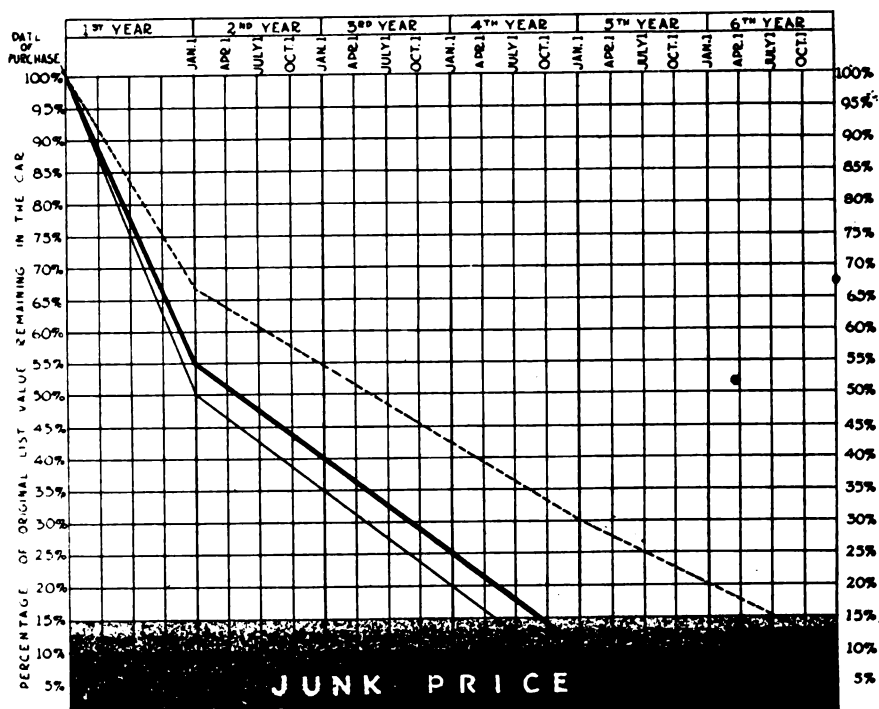
9—Study the Laws of Used Cars that were printed in **MOTOR WORLD**, May 30, and which will be printed again in future issues, with additions.

10—Have **BACKBONE**. Make up your mind you are going to **SOLVE** this used-car problem for yourself. Decide to run your business for **YOUR OWN** benefit. Put your profits into your own pocket instead of your customer's.

This tenth point is the most important of all. No plan, no method, nothing is any good unless it is put into effect with firmness and determination. When the dealer knows he is right he should stand upon his rights and get what is **HIS**. For too long the owners have been running the used car business.

If you get what is on these two pages and go after this used-car question in a wholehearted, backbone way, you will make more money than you ever made before in this business.

USED CAR CHECK SHEET			
Make.....		Owner.....	
Body Type.....		Address.....	
Capacity.....		Phone.....	
Engine Cylinders (cracked)..... Valves (grinding, etc.)..... Timing gear (adjustment)..... Rod bearings..... Main bearings..... Pistons and rings..... Oiling..... Carbon (removal)..... Ignition..... Wiring..... Plugs..... Coil..... Magneto..... Fuel System..... Carburetor..... Line and tank..... Cooling System..... Fan..... Radiator..... Pump..... Starting—Lighting..... Generator..... Starting motor..... Bulbs..... Wiring..... Storage batteries..... Clutch..... Adjustment..... Refining..... Transmission..... Gears..... Bearings..... Shaft..... Shifting mechanism..... Driveshaft..... Universal..... Rear Axle..... Adjustment..... Gears..... Bearings..... Radius rods..... Torque member..... Motor World Systems		Front Axle Alignment..... Steering Gear..... Adjustment..... Bearings..... Gears..... Running Gear..... Springs..... Brakes..... Wheels..... Fenders..... Runningboards..... Tires..... Front..... Rear..... Extra..... Body..... Paint..... Upholstery..... Floorboards..... Windshield..... Equipment..... Speedometer..... Top and curtains..... Horn..... Tools..... Extra Equipment..... Overhaul Cost..... Appraiser	



1912 1913 1914 1915 1916 1917

Before making an allowance on a car **KNOW** what it will cost to fix it up. Check the car with this Used Car Check Sheet and itemize the cost. These sheets may be obtained from Motor World in pads of 100, 4x8 in., for 50 cents a pad

This Used Car Price Chart will tell you what a used car is worth. It was prepared by Motor World after a comprehensive investigation and analysis of the used car business. In the lower left corner of this page are directions for using the chart. This chart in larger size has been several times printed in Motor World. Would you care for it in large size?

How to Use the Price Chart

(In the Upper Right-hand Corner of this Page)

1—Determine the year of the car. If a 1915 car, place your finger on 1915 at the bottom of the chart.

2—Count to the right. When you hit 1917 you will say “three.” This means that the car is in its third year.

3—Find the “third year” section of the chart.

4—Find the month line nearest to-day. It is July 1.

5—Run down the month line until you hit the **BLACK LINE**. The July 1 line in the third-year section hits the black line at 33 1/3 per cent.

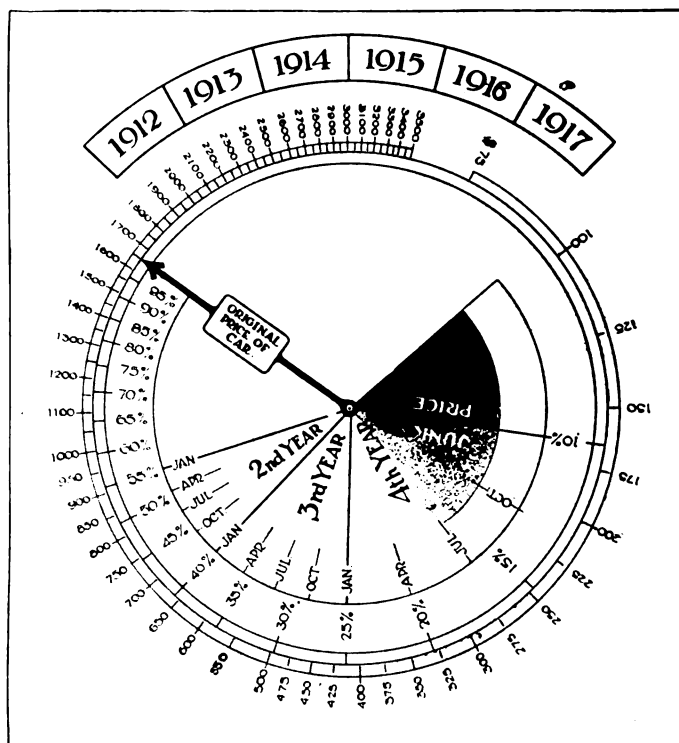
6—Find 33 1/3 per cent of the original list price of the car.

7—To this add 40 per cent for increased value through overhaul. This is the resale price. If you **KNOW** it is too high or too low adjust it, but be careful.

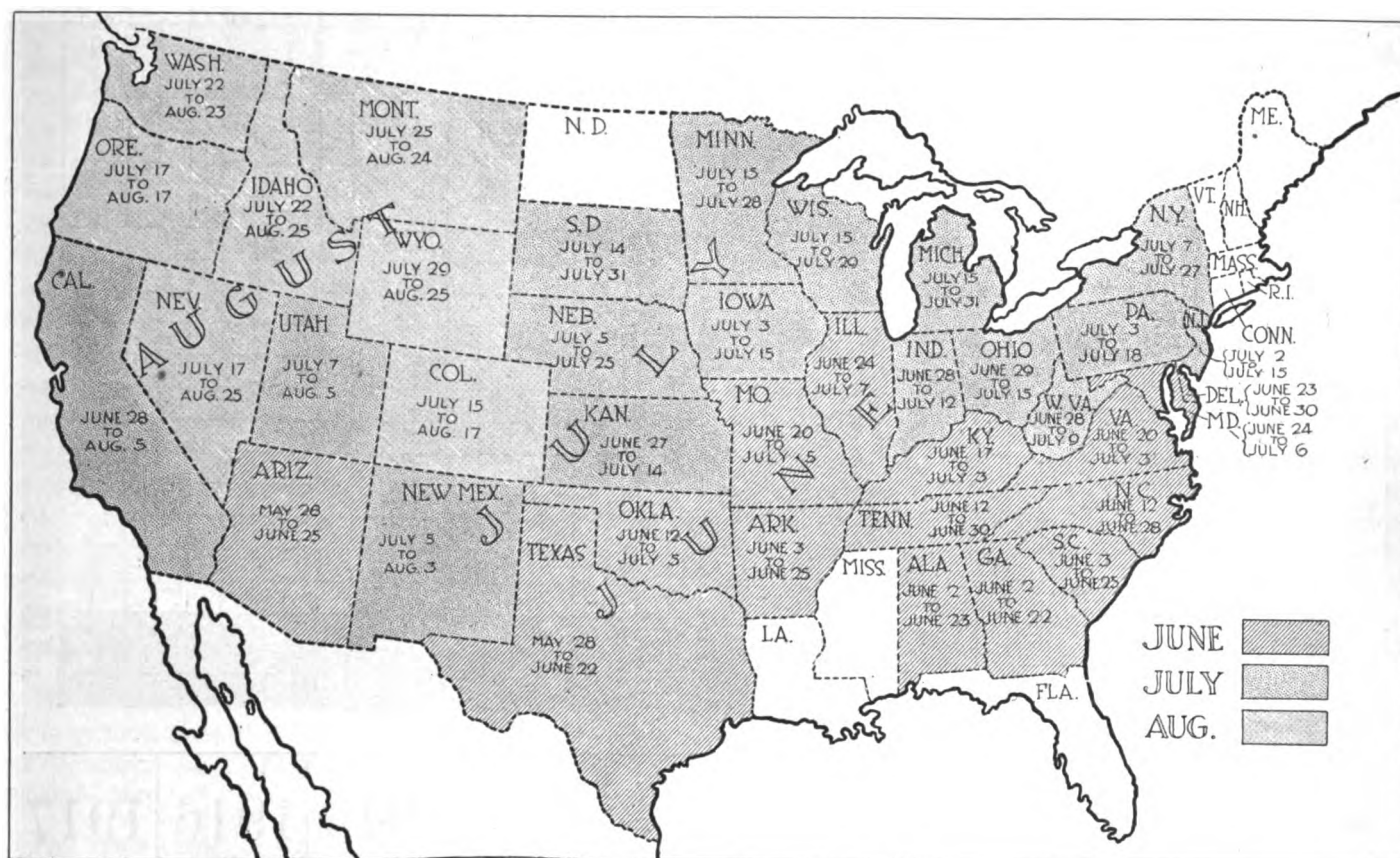
8—From this resale price deduct (a) the overhaul cost, (b) salesman's commissions, and (c) overhead or cost of handling.

9—This tells what you can allow for the car. It is your **ALLOWANCE**.

10—The finding of these percentages is made easy through the Used Car Price Wheel shown at the right on this page.



THE BLACK LINE, or curve, on the Used Car Price Chart at the top of the page, has been made into a Used Car Price Wheel. This wheel was printed in large form with directions for making and using in Motor World June 13. Would you care for a reprint of those pages?



This map shows when the great winter wheat harvest of the country is made. It is estimated now that 400,000,000 bushels will be harvested

How Can We Help the Farmer?

We Can Lend Him Our Hands or Our Heads

IT is generally recognized that labor will be the chief limiting factor in the production of food this year. The farmers have planted their lands to the limit; a greater acreage has been planted than any previous year. The United States Department of Agriculture estimates that the yield of winter wheat will be 400,000,000 bushels.

Already the harvest has commenced; in some states, notably Texas, Arizona, Georgia, South Carolina and Alabama, it is practically over. But these are great wheat states in any sense of the word, and there has been no shortage of labor.

The principal difficulty is that the states of the Northwest and Southwest where the wheat is grown are essentially one-crop states; they raise wheat and very little else and nearly all the wheat is harvested at about the same time. This means that large bodies of men are required for only a comparatively short time, but in sections which may be quite distant from each other. The average time of harvesting winter wheat is about two weeks, sometimes three. And the harvesting starts as early as the end of May in Texas and as late as the end of July in Montana.

West of the Mississippi and south of the Ohio River, labor is not far short of normal in general. However, in some of the states within these boundaries farmers will be in need of all the help they can recruit.

The motor car dealer, garageman and repairman can be of assistance, not only in getting the help for the farmers but in moving any surplus of help from one section to another.

In the states which harvest their wheat through the month of June, there are 9,314 individuals or companies in the motor car trade. In the states where harvesting is done in July there are 21,721; and in the August harvest states there are 2,173.

July is the big winter wheat month. Nearly three times as much wheat is harvested in July as in June. Only a small amount comes in in August.

Hence, the shortage of labor will become most acute in July.

For many dealers, July is a comparatively slack month. Nineteen hundred and seventeen models are pretty well sold and the new models are not yet coming in. Likewise, July is slack for the garagemen, for not many persons tour in the heat; and the repairman

also is slacker than in June or later in the season.

Perhaps dealers, garagemen and repairmen can help the farmer by letting some of their men help out on the harvest work. Two weeks in the fields would send these men back to their jobs with new life in their blood.

Successful dealers and garagemen are good executives. If they cannot lend their men they can perhaps lend their brains. There will be much organization work to be done.

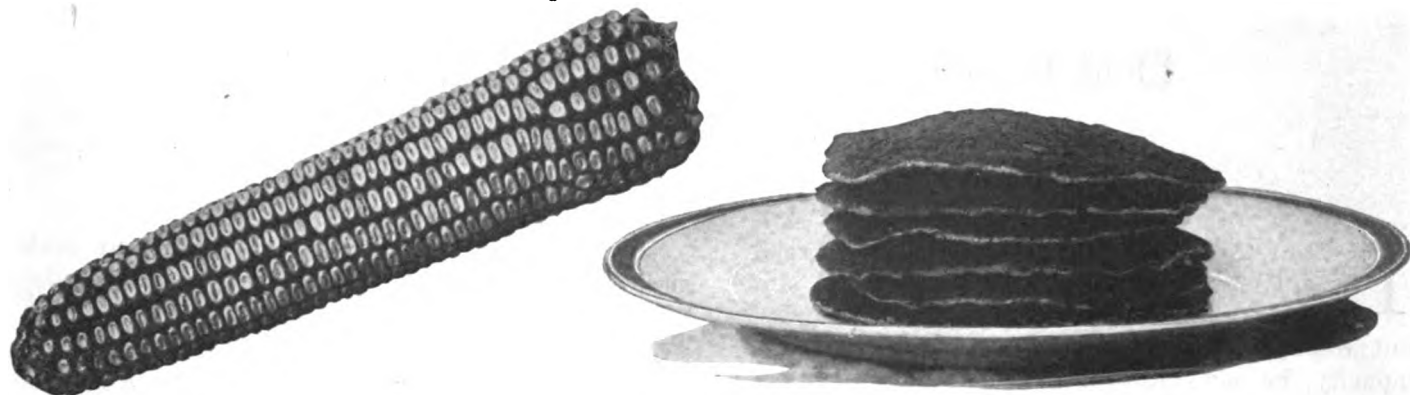
The Department of Agriculture is at present making a survey of labor conditions. When this is completed, certain men in every section will be appointed to take hold of this organization work and push it through.

It is estimated that there are 700,000 retired farmers. These must be educated to the good work they can do in helping their less experienced brothers and in directing the efforts of recruits. It is said there are more than 2,000,000 boys in towns near the farming area.

That help will be needed, and probably needed badly, there seems no doubt. Motor car dealers, garagemen and repairmen of the country can be of powerful aid in solving this labor problem.

Eating Will Be Good But Different

Help Save the Wheat



THE wise men of our war government have said that business will be good, but that it will be different in a great many ways—"Business will be good but different." They mean that before the country gets through with this war a lot of us may be doing different things and doing lots of things differently. One of the things we are going to do differently is eat. We can't wage a real honest-to-God American war and eat as we have eaten before. One reason is that the rest of the world needs some of the things we have been eating. It needs a lot of wheat. It doesn't need ALL of our wheat, but it needs some of it. It needs some of our beef and other products that can be shipped to Europe. This means that we must eat more of the things that can't be shipped, but which are perfectly good eating.

For instance, there is fruit, which grows in abundance and perishes if not eaten. It can be eaten in many ways—melons for breakfast, apples for dessert, apple sauce any time, grapes, cherries, berries, all kinds of fruit sauce that require no wheat at all for crusts. And there are vegetables

in profusion—cucumbers, radishes, onions, squash and products without limit. All these make good eating. And if we eat more of these things and less of the others—

Eating will be different. But it will be good, won't it?

Now, let's take up some ONE thing. Let's take the substitution of corn for wheat. Instead of wheat bread let's eat a little johnny cake now and then, corn muffins, corn pancakes, corn meal, corn pone and corn everything. You'll be surprised how good some of these things are, how little they cost and how extensively they can be made to take the place of wheat.

We can eat rye, too, but let's stick to corn for the moment. As a suggestion, there are offered on these pages two recipes. Try them, and see if they don't provide a good, palatable substitute for wheat.

This further suggestion is made: Write a letter to every one of your employees. Sell them on the idea of SAVING THE WHEAT. Having sold them on the idea, give each man a copy of the two recipes

on this page, with a short letter from yourself, and ask him to sell his wife on the idea. Give the letter and recipes also to the girls in your organization.

Here is the result you may help achieve: Motor World goes to more than 20,000 dealers. Supposing each dealer sells the idea to five people in his organization. Suppose each person who adopts the plan represents a family of five persons; that means that the idea is adopted by 100,000 families and 500,000 people. If this estimate should prove to be a half too low it would mean that 1,000,000 people would get the SAVE THE WHEAT idea.

If each family cuts its wheat-eating in half it will help amazingly. Most healthy families can get away with at least a loaf of bread a day. The saving would be 50,000 loaves a day, nearly 20,000,000 a year.

One loaf isn't much. Neither is one wasted crust, but it is estimated if each home wastes a crust a day it represents 1,500,000 barrels of flour a year. Our wasted crusts would go a long way toward feeding the world.

HELP SAVE THE WHEAT.

Cornmeal Griddle Cakes

Three-fourths cupful of white cornmeal, one-fourth cup of flour, three-fourths teaspoonful of soda, one teaspoonful salt, one and one-half cupfuls buttermilk, one egg. Sift the dry ingredients twice, beat the egg and combine with the buttermilk, then stir into the meal. Beat hard for five minutes and bake on a hot griddle. Serve immediately.

Try These

Breakfast Muffins

Two cupfuls white corn meal, three eggs, two cupfuls buttermilk, one teaspoonful soda, one teaspoonful salt, one teaspoonful sugar, two tablespoonfuls melted butter. Sift the dry ingredients together, then stir into them the buttermilk. When well mixed add the eggs, beaten light, and the melted butter. Pour into greased, hot muffin rings and bake quickly.

WHAT suggestions can you make as to food conservation? Have you any recipes that provide palatable substitutes for wheat and beef? If so, let's have them. The motor trade is but one part of the big American public that must help feed our allies by SAVING THE WHEAT.

Unload the Freight Cars

Dealers Must Sustain Their Reputation for Quickly Releasing Cars

TO-DAY the railroads of the country are carrying more freight than ever before. This is the statement of the president of one of the leading lines. But when they have carried 100 per cent of their capacity, he says, there still remains 15 or 25 per cent, and perhaps 30 per cent which they cannot carry at all. Another railroad president has said that if the war continues any length of time transportation facilities will be far below the demand.

Even now the United States Government is seriously considering taking over the operation of the railroads so that the supply of transportation may be conserved, and necessities moved. The railroads themselves are taking radical methods to solve the problem. One of them has cancelled 200 passenger trains from its summer schedule; another has withdrawn 40 trains. Special trains are being refused and conventions discouraged.

All this is being done that necessities may be moved—food for the people, fuel for the factories, raw materials, munitions and so forth. Soon large bodies of troops must be moved; soon we shall have our own army in France, and this means that there must be an uninterrupted flow of munitions to our seaports.

The harvest season is now on. This means that great numbers of freight cars will be needed to move grain from the Middle West and the Northwest to the coasts and intermediate cities. Considering all crops, the acreage planted this year is greater than ever before. Most of these crops are perishable, which means that they must be moved quickly.

With these facts in view, it becomes plain that only the ablest management and the closest co-operation between shippers and the railroads and those who receive shipments will keep trains moving and freight from piling up.

At the present time there are approximately 2,500,000 freight cars in the country. There is estimated to be a shortage of 150,000 cars—about three-quarters of one per cent of the total.

"If, through better loading by the shipper, better unloading by the consignee, better movement by the railroad, and more alert work by every man in the railroad, each car is used more efficiently, it will not take long to get what amounts to an added service of 150,000 cars out of the cars on hand," says Howard Elliott, member of the Railroad War Board.

The most essential thing for the motor car dealer to-day is to establish a reputation for unloading freight cars quickly.

To-day, dealers are not holding freight cars for any unnecessary length of time except in a few isolated cases. The situation is better now than it has been for a long time.

But dealers must keep up the good work. If a reputation for quick unloading is established, the railroads—and the government, if it takes over the operation of the railroads—will be far more likely to permit the use of freight cars for the movement of motor cars and accessories and the raw products used in their make-up.

Dealers must do everything in their power to eliminate waste of transportation. Allowing a freight car to stand on a siding fully loaded, when it might as well be unloaded, is wasting transportation. Unloaded, the car can be used. Loaded, it is useless.

The railroads are doing everything in their power to co-operate with the motor car factories. A recent order requires that every automobile car must be immediately started back toward the center it came from—loaded with other commodities, or empty. This means the minimum delay in getting another carload of automobiles to the dealer. The least the dealer can do is to unload the car quickly and send it on its way.

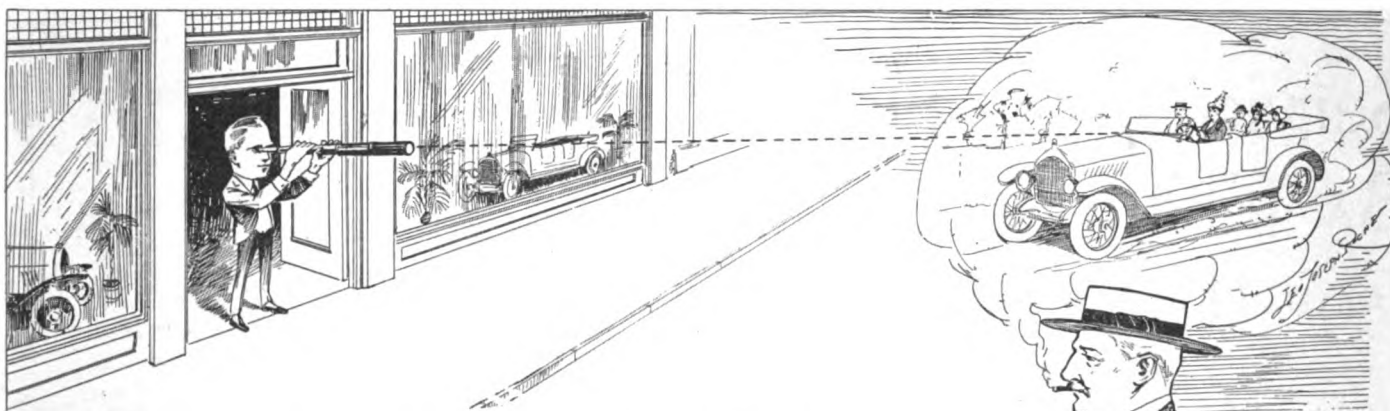
The day is not far distant when every inch of space in every freight car will be needed for the shipment of necessities. Those who would ship goods that do not fall into the "necessary" class, as defined by the government, are going to have to fight and fight hard for cars.

It will be then that the reputation of the country's dealers for prompt unloading and release of cars will be a tremendous power in their favor.

"But," says J. S. Marvin, traffic manager of the National Automobile Chamber of Commerce, "if their reputation is bad, God help them."

Unload freight cars the day they are received, not the next day. Unload them well within the "free time" allowed by the railroad. Release them immediately so the railroads may get to know that cars consigned to dealers are never held a minute longer than is necessary to get the goods out of them.

Get a reputation.



What the Prospect Thinks

By Ray W. Sherman

"**B**UT how is a fellow going to know what the prospect thinks? I'm not a mind reader," pleaded George Beckwith as he and Reilly and Tommy Trumbull were taking one of the newest prospects apart and looking at the inside of him.

"If you put ten cents in your vest pocket do you know what is in that pocket?" asked Reilly.

"Of course I do!"

"Well," asserted Reilly, "the same thing applies in the case of the prospect. We know what he thinks because we put the thoughts in his mind. Nothing startling then, is it, if we know what he thinks?"

"Maybe not," parried George, "but suppose he gets a few thoughts from some one besides us. Then what?"

"Oh," laughed Reilly, "you mustn't mind a little thing like that. We don't know ALL he thinks, but we know enough of it to help us a whole lot in selling him a car. You see, it's this way:

Everybody Wants a Car

"To start with, we know that there probably isn't a living human being that doesn't want a car—or has one. That line of thought is fairly well understood, isn't it?"

"Yes."

"We know the man wants the car for two purposes—for business or pleasure or for both, but most men expect to get some pleasure from it. If we know the man's business we know the extent to which he may use a car, and it is practically a certainty that he has thought of all the ways he can use it. "If he has a wife and two or three kids we can have in our mind the same picture he has in his of the family out on the road Sundays and evenings, and perhaps the wife driving.

"Now, those are the thoughts that every man has regarding cars. Let us go a step farther and narrow them down to a smaller limit. The average man wants looks, size and a whole lot of things, but the big factor that throws him into a certain class is price. He wants to pay all he thinks he can af-

ford and he isn't anxious to pay less. If he can afford to pay \$1,800 and can get more for that sum than he can get for \$1,300 he wants the \$1,800 car. Therefore, he thinks mostly in the \$1,800 class.

"Supposing he is thinking in the \$1,200 to \$1,500 class, which is our class. What we now wish to know is what he thinks of the cars in those classes. It isn't as difficult as may seem to get a pretty good line on his thoughts. They are shaped generally by three things: his own experience, what others have told him, and advertising he has read.

"As to his own experience, that generally is confined to one make of car. If it is our car the situation is simplified amazingly. If it is one of our competing cars we have a fairly good line on his thoughts, because we know how they are regarded by their owners. If he owns a car that is long on service, or comfort, or economy, or any other point we know he thinks those things about cars and wants them in the car he is going to buy. He expects to find them in our car—and then some.

"Much the same thing applies to what others have told him. Their stories are the stories we already know about our competitors. And he may also be guided by what he has been told about our car.

Is Influenced by Advertising

"Generally he is largely influenced by advertising, ours and the factory's. This is one of the greatest thought-shapers in the world. He has read the advertising over and over again, and this creates one of the big thoughts in his mind as he walks down the street to our salesroom.

"He has read about the beauty, comfort, style and performance of our cars. He has read in our local advertising these same things, and in addition the fact that we are an up-to-date, reliable and courteous organization. Therefore, when he walks down the street to call on us he is thinking these thoughts:

"I want a car.

"I can afford one at from \$1,200 to \$1,500. I can't pay more and I don't want to pay less.

"People tell me most of the cars in this class are pretty good. They are all represented in Callawassa by good dealers except one.

"The Reilly organization is live and up-to-date.

"The Sennett car is a beauty in looks, it performs well and is easy-riding.

"Therefore, I'll drop in and see this live Reilly organization and the beautiful Sennett car."

Don't Give Technical Lecture

"With these thoughts in his mind he walks in the door. They are a big part of our selling story already fixed in his mind, and it is up to us to finish the story. How are we going to do it? By immediately walking him to the car, lifting the hood and beginning a technical lecture on the motor? Not on your life! We must begin our story where he left off thinking, so that his thoughts will run in an even line right down to the contract.

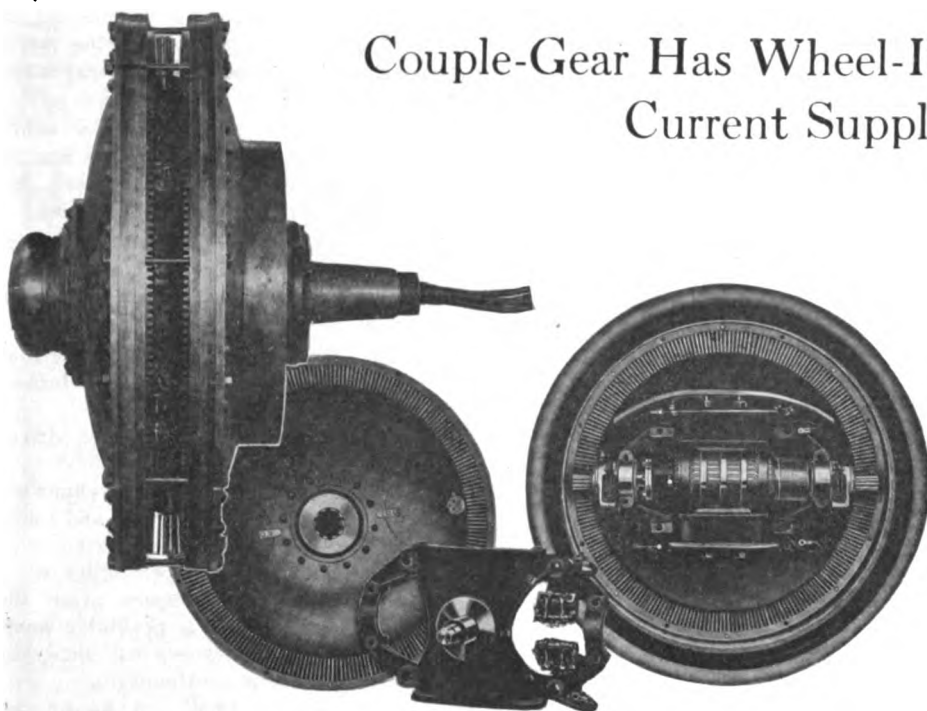
"We have advertised the beauty of our car. Therefore, it would be a shock to him if we didn't at once begin to talk about beauty. We have advertised comfort, so we must make that one of the first big points. We have told what an efficient organization we have here in Callawassa, so we must act the part. If we sit on a runningboard and smoke a cigarette, with our hat on, while he walks across the floor to us, we have practically destroyed the impression that it has cost us thousands of dollars to build. We must make our sales talk fit our advertising; we must build it around the things we know are in every prospect's mind. We—"

"Just as Mr. Trumbull outlined the other day in his talk on how to present a car!" exclaimed George.

"Quite right!" smiled Reilly. "A very sinner's idea."

In addition to this plan the Chalmers company has also commenced the publication of a monthly paper called the "Chalmers Shop and Service," which will constantly endeavor to place the newest information and most valuable hints before the dealers and distributors. The first issue contained, among other items, "Cold Weather Hints," "Effects of Continued Cranking on Batteries," and "Value of Service Meetings to Dealers and Shop Men."

Couple-Gear Has Wheel-Inclosed Motors; Current Supplied by Battery or Engine and Generator



The Couple-Gear motor is within the wheel, pinions on both ends of the armature shaft meshing with a ring gear attached to the wheel

FEATUREING direct drive from an electric motor integral with each of the driving wheels, a complete line of trucks and semi-tractors is manufactured by the Couple-Gear Freight-Wheel Co., Grand Rapids, Mich. The line includes a one-wheel drive tractor, 3½, 5 and 10-ton forward drive models, and 5, 8, 10 and 15-ton four-wheel drive models. There is in addition a gas electric semi-tractor built in 7, 10 and 15-ton sizes.

The element of each of these vehicles is the couple-gear wheel. This wheel is in two parts, each dish shaped and bolted together. In the interior is an electric motor, held in a horizontal position and attached to a stationary flange. Bevel pinions, at each end of the armature shaft, mesh with cog racks on the inner faces of the wheel disks.

As the armature shaft is at a slight angle to the plane of the wheel one pinion meshes with the cog rack of one-half of the wheel, the other meshing

with the other cog rack. This enables the driving force to be applied to opposite sides of the wheel, and neutralizes the effect of the driving pressure on the wheel bearing.

Several advantages, in addition to the simplicity and efficiency of drive, are claimed. The driving force is divided between the two pinions, and hence the pinions may be made smaller than would otherwise be possible. This makes possible a single gear reduction of 25 to 1, and avoids the complications and losses of a countershaft arrangement. All end thrust on one pinion is overcome by the equal end thrust of the other pinion.

The wheel is supplied separately, for conversion of horse-drawn vehicles into trucks, or on the complete vehicle.

Perhaps the simplest adaptation of the wheel is on the one-wheel drive tractor, suitable for yard hauling work. In this model the couple-gear wheel is the front and steering wheel of a small battery-driven three-wheel tractor. As the

power wheel may be turned in any direction, the tractor can be driven and turned about in any place that will accommodate a single horse.

On the front wheel drive trucks each of the front or steering wheels is separately driven by the internal electric motor. It is stated that 95 per cent of the motor power is applied to the point of traction, because of the direct drive. In addition, the front wheels are small and the rear wheels large, and act as trailers, carrying most of the load. As with equal load conditions large wheels require less tractive effort than small wheels, the advantage of the small front wheel drive is still farther increased.

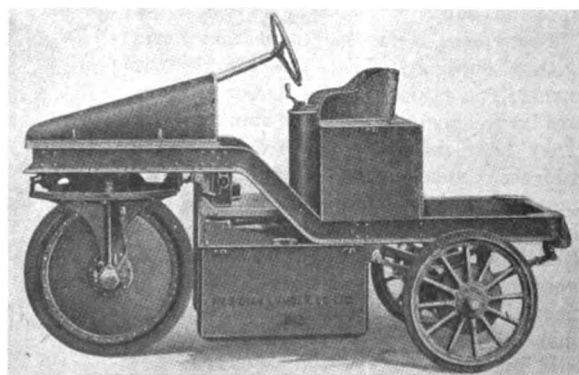
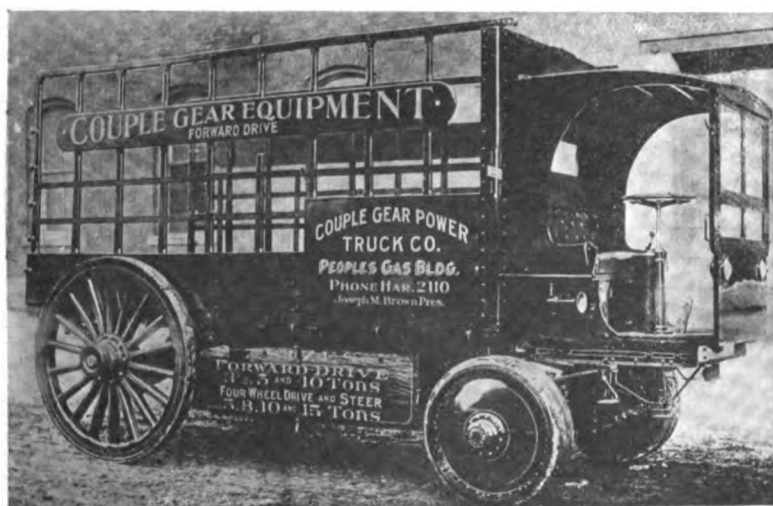
In those cases where extreme tractive effort is required, each of the four wheels is of the individually driven type. This is especially adapted to trailer use or use with a semi-trailer. With this construction each of the four wheels is a steering wheel. This permits a short turning radius and direct application of driving force in the direction of travel.

The gas-electric semi-tractor is in reality a gas-powered car with an electric transmission—except that the motors are placed in each of the driving wheels. It possesses the advantages of the couple-gear type of drive, namely, eliminations of drive shafts, chains and differential, and applies driving force directly to the wheels.

Prices on complete vehicles range from \$2,400 to \$7,000, depending on the nature of the truck, and whether battery or gas-electric power units are used.

Triangle to Have Truck Factory

ST. JOHNS, MICH., June 23—The Triangle Motor Truck Co. held a meeting of stockholders this week and arranged for the erection of a factory. The company has a capital stock of \$50,000; \$32,500 has been subscribed.



At the left is a battery-driven Couple-Gear truck, with motor units only in the front wheels. At the right is a small one-wheel-drive tractor operated by batteries

Government Proposes Standard Gasoline

FOR a long time the United States Government has been carefully investigating gasoline and other fuels with a view to ascertaining whether it would be possible to establish a set of standard specifications covering various grades of such fuel. The work has now been practically completed and is outlined in a report by E. W. Dean of the Bureau of Mines. This report is abstracted herewith and contains a wealth of information that will assist anyone to a clearer understanding of the gasoline situation.—EDITOR.

SPECIFIC gravity is the property by which gasolines have been most generally differentiated, but under present conditions a specific gravity determination is entirely inadequate; it may give a high rating to a poor gasoline and a low rating to a good one. More adequate testing methods are now being employed, but these are not always satisfactory and are not thoroughly understood. The general tendency has been either to specify tests that are unreliable or else to make requirements unreasonably severe. Many buyers still believe that only "straight" refinery gasolines, free from casing-head and cracked products, are desirable, and the tests they require discriminate against a large part of the present market supply of gasoline.

The analytical methods used for testing gasoline are of fairly recent development and the published descriptions of them are not found in standard textbooks. Some of the methods are decidedly unsatisfactory, having been devised to meet immediate needs when time did not permit thorough study of the factors involved. These methods meet tolerably well the needs of refiners who possess information regarding the sources of raw material and the method of production, but they do not suffice for the chemist who is given a sample of gasoline and requested to make a comprehensive statement of its properties. Some of the tests in use are not standardized, and there are substantial differences in the methods of conducting them in various laboratories.

Also there is a lack of knowledge regarding the practical interpretation of the results obtained in the laboratory, the general tendency being to overemphasize the importance of some particular figure. Specific gravity formerly was considered a complete index of the properties of a gasoline. At present there is danger that overemphasis may be placed on some other equally unimportant factor. One of the chief objects of this paper is to indicate rational methods of interpreting analytical results.

Of course, no hard and fast line differentiates good gasoline from bad. Actually standards of quality seem to be varying with advances in engine design, so that what was once decidedly poor gasoline can now be successfully

used. Probably the limit of change has not been reached yet; and the writer has taken care to point out that the grades of gasoline now on the market do not necessarily represent future grades.

The essentially desirable properties of gasoline may be summarized briefly as follows:

(1) The gasoline should not contain too large a percentage of highly volatile products, which tend to cause large evaporation losses and excessive danger in handling and storage, but should have sufficient volatile constituents to permit starting an engine under reasonably unfavorable conditions without preheating.

(2) The gasoline should not contain any considerable percentages of heavy or nonvolatile constituents, which after atomization into the engine cylinders cannot be completely vaporized and burned.

(3) The gasoline should not contain a material which after combustion leaves a residue that collects in the motor.

(4) The gasoline should be free from substances that attack metal, either before or after combustion. Unremoved acid (used in refining) falls under this head.

(5) Neither the gasoline nor its products of combustion should have a strong or markedly disagreeable odor, this being objectionable to users of automobiles.

(6) The gasoline should be free from noncombustible material, such as water, sediment, acid, etc.

These stated requirements are simple in principle and are almost axiomatic. The chief problem is to fix limits, defined by actual tests, that will satisfy the desirable conditions.

There are at present on the market types of gasoline produced by several

Proposed Specifications for Motor Gasoline

COLOR

Requirement.—Water white.

Method of determination.—Inspection of column in 4-ounce sample bottle.

ACIDITY

Requirement.—Total absence.

Method of determination.—Ten cubic centimeters of gasoline is to be shaken thoroughly with 5 c. c. of distilled water. The aqueous extract must not color blue litmus paper pink.

VOLATILITY

Requirements.—The gasoline shall, when distilled by the method described hereafter, meet the following requirements:

(a) The temperature read on the thermometer when 20 per cent has distilled shall not be below 70 deg. C. (158 deg. F.) nor above whatever limit is fixed after due consideration of conditions of use.

(b) The temperature read when 90 per cent has distilled shall not be above another limit similarly chosen.

(c) The temperature read when 50 per cent has distilled shall not be higher than a mark half way between 20 per cent and the 90 per cent limit.

(d) The dry point shall not exceed the actual 90 per cent reading by more than 55 deg. C. (99 deg. F.).

Tolerance.—If either the 20 per cent or the 90 per cent temperature mark is above the required limit by an amount not exceeding 10 deg. C. (18 deg. F.), the gasoline may be considered acceptable if the sum of the two temperatures read for the 20 and the 90 per cent marks does not exceed the sum of the adopted limits.

general methods. These may be classified as follows:

1. "Straight" refinery gasoline.
2. Blended casing-head gasoline.
3. Cracked and blended gasoline.

"Straight" Refinery Gasoline

"Straight" refinery gasolines are produced by methods that vary somewhat in different parts of the country but in general are similar. Crude oil is distilled in a fire still and a cut made when the gravity of the product reaches some predetermined mark. So-called crude naphtha, or benzine, is acid refined and steam distilled. Several products of different ranges of volatility may be produced, or the steam distillation may simply separate the product from the less volatile bottoms, which go into the burning oil stock.

"Straight" refinery gasolines are generally characterized by a low content of unsaturated and aromatic hydrocarbons, and by a distillation range free from marked irregularities.

Blended Casing-Head Gasolines

During the past few years so-called casing-head gasoline, obtained from natural gas by compression or absorption, has come on the market. "Straight" casing-head gasoline is too volatile for general use and, before being marketed, is generally blended with enough heavy naphtha to produce a mixture that can be used safely and is moderately cheap. In general, blended casing-head gasoline is characterized by a volatility range that shows a considerable percentage of constituents of low and of high boiling points, but a lack of intermediate products. Frequently, however, the blending is done in a manner difficult to detect, the natural-gas gasoline being used in moderately small proportion with "heavy" straight-run naphtha in order to make a product having a desirable percentage of volatile constituents.

As regards its chemical properties, blended casing-head gasoline seems to be identical with the "straight" refinery products of the same distillation range. Characteristic physical properties of blended gasolines are due wholly to the details of blending.

Cracked or Synthetic Gasolines

Important factors in the present supply of gasoline on the market are the cracked or synthetic gasolines. These are being marketed in enormous quantities, largely, if not altogether in the form of blends with "straight" refinery and casing-head gasoline.

Cracked gasolines are similar to "straight" refinery products in most physical and chemical properties, but differ chemically in containing varying percentages of unsaturated and aromatic hydrocarbons. It has been demonstrated that these constituents, if present in moderate proportions, do not decrease the value of a gasoline. Also, competent authorities generally concede that by proper engine equipment and adjustment it is possible to use unsaturated hydrocarbons in practically unlimited proportion, although extensive experimental proof of this latter point does not seem to be available as yet.

Properties of Gasoline

Before outlining a system of analyses and specifications, it seems desirable to discuss thoroughly the individual properties that might be considered important and also to consider analytical methods. This paper is not intended as a complete review of gasoline analysis, and those properties that are considered of minor practical importance are not discussed in detail.

Color

Color is of some importance because it serves as an index of other qualities.

Properly refined gasolines are water white and hence it seems desirable to include a color requirement in specifications for gasoline. It does not, however, seem necessary to employ a test involving any sort of a tintometer, as the rough-and-ready method of looking through the bottom of a 4-oz. sample bottle is adequate.

Odor

Gasoline should be free from rank and disagreeable odors, as these cause discomfort of users, especially if the odor has a tendency to cling to clothing. It is, of course, impossible to fix any definite standard for odor as to either quality or strength. The older requirements demanded the sweet, pleasant odor characteristic of high-test uncracked distillates. With the present necessity of using cracked gasoline this requirement has become impossible and the requirement of odor must be left in rather indefinite form.

Water and Other Foreign Matter

Gasoline should obviously be free from water and other foreign matter. Water is seldom present in gasoline and is always easy to detect, as the two liquids are mutually insoluble.

Acidity

Obviously, too, gasoline should not contain any acid from the refining process. This, however, seems to be a failing from which market products are largely free. Acidity may be detected by shaking a sample of the suspected gasoline thoroughly with a small quantity of water and testing the water with blue litmus paper.

Heating Value

No data are at hand to show the effects of calorific power on the usefulness of a gasoline. However, the actual variations in calorific power for different kinds of gasoline seem to be relatively small, and as the mechanical energy developed in the engine is only a fraction of the heat produced, these variations may be regarded as negligible. Some recent experiments have shown that gasolines of widely differing physical properties varied only by a maximum of 2 per cent in calorific value per unit weight.

Content of Aromatic Hydrocarbons

At present little heed need be given to the effect of aromatic hydrocarbons in motor fuel, as these products are in tremendous demand for the manufacture of explosives, dyestuffs and drugs. After the end of the war in Europe it may become necessary to devise a specification clause limiting the percentage of these hydrocarbons that a gasoline may contain, but it is equally possible that such action may be unnecessary. For present indications are that aromatic hydrocarbons are just as good motor fuel as non-aromatic. If limitation should become necessary it can probably be made most effectively and simply through the specific-gravity requirements.

Specific Gravity

Specific gravity in itself is of very slight significance in determining the properties of gasoline. It may serve as an index of other properties, particularly volatility, if knowledge is at hand regarding the source and method of production of a gasoline. The determination of gravity has been and probably always will be one of the most useful tests that the refiner employs, but it is of but little value to the analyst who does not possess sufficient additional in-

formation to make proper interpretation of gravity results.

Volatility

Volatility is the basic property that determines the grade and usefulness of a gasoline. Unfortunately its influence is not simple enough for adequate discussion in a few words, chiefly because the advantages and disadvantages of various characteristics of volatility are so balanced that no one characteristic can be said to be either entirely desirable or entirely undesirable. For example, the presence of considerable percentages of low-boiling constituents in gasoline would seem desirable in that they permit easy starting of a cold engine. Against this advantage are the high prices of such gasolines and the considerable evaporation losses, the latter tending to increase danger in storage and handling.

General consideration of the numerous factors involved has led to the following conclusions regarding the desirable characteristics of the volatility of motor gasoline.

Gasoline should contain a moderate but not excessive proportion of low-boiling constituents, enough to permit easy starting of a cold engine but not enough to make evaporation losses excessive.

Gasoline should have a total volatility range wide enough to include constituents that have a high, but not too high, boiling point. For economic reasons affecting both the individual user and the country as a whole, this volatility range should be such that the gasoline contains the largest possible percentage of the original crude oil. It should not, however, be wide enough to exceed the limits of the vaporizing power of the automobile engine.

These two factors are not the only ones involved in the problem of volatility limits; but if properly attended to they generally take care of other essential features, such as "flexibility," freedom from carbon deposition, and development of maximum power.

The low limit, or rather the percentage of constituents volatile enough to insure ready starting of a motor, varies with the design of the engine, and also with existing temperature conditions. It is obvious that to "start" satisfactorily, gasoline must contain more low-boiling constituents in the winter than in the summer, and more in cold climates than in mild. All of these considerations emphasize the impossibility of fixing temperature limits that will in all cases economically and satisfactorily define the product "gasoline." In general usage "gasoline" is thought of as something that will start an automobile engine and keep it going when started. The "goodness" of the gasoline from the point of view of the average user depends largely on ease of starting and only in a minor way on the possible mileage per gallon or on freedom from carbon deposition.

Among automobile users there is a more or less prevalent feeling that producers and marketers are taking advantage of them. This feeling is due in part to higher prices and in part to

changes in the composition of the motor fuel. An added source of discontent is the fact that some filling stations are believed to deliver to their customers a product made by blending gasoline with varying proportions of kerosene. As a result of this situation it is possible that local or State legislative bodies may enact laws for standardizing the product sold as gasoline and for preventing fraud through its adulteration with kerosene.

Faulty legislation will probably be as much to the disadvantage of the consumer as of the producer, especially if it prevents the marketing of products that fail to meet definite numerical standards. On the other hand, there seems to be no inherent reason why the consumer should not know what he is buying, and in view of the present situation it would seem good business policy for the marketers to supply the information that is desired. Users wish to have assurance that they are not being cheated, and it does not seem reasonable to suppose producers and marketers are unable to give this assurance. However, the function of the Bureau of Mines is not to solve this problem, which really falls in the realm of business management,

and the present paper is limited to the purpose of supplying technical information.

At present (April, 1917) the grade of gasoline generally marketed in California seems to be considerably lower in distillation range than that generally sold in other parts of the country. In the Mid-Continent field the products vary from a grade approximately equivalent to that sold on the Pacific coast to products of relatively high "end point." Many of these high "end-point" products are so carefully produced and marketed that they are used with perfect satisfaction. On the other hand, the bureau has evidence that, in limited degree at least, gasoline has been sold that was improperly refined or was blended with burning oil by the marketer. Such gasoline naturally has not given as general satisfaction as the "fool proof" light gasoline or the scientifically blended heavy motor fuel.

In the East the general output of motor fuel has a moderately high end point, but is probably, though not certainly, a little lighter than could be used with general satisfaction under favorable engine conditions.

In a way, the present problem has

grown from the bureau's task of preparing specifications for Federal purchases of gasoline in the District of Columbia. The method adopted in preparing these specifications was briefly as follows: Samples of the various types of motor gasolines sold in the District were analyzed. A specification was then written which represented the average product already on the market.

Specifications for several other naphthas and gasolines required for special purposes were written in a similar way, necessary information being obtained from the analyses of readily obtainable products that had been proven satisfactory for the particular uses.

This method of determining specifications is not absolutely scientific, but is recommended as being highly practical. If any community, organization or firm desires to purchase gasoline on specification it should first ascertain what products it can buy at standard prices and then find out which of these are satisfactory in use. Information regarding these two points needs to be supplemented only by satisfactory analytical methods which, it is thought, will be generally available on the basis of the information presented in this paper.

Pleasing Bodies on Monitor Four and Six Standard Components in Both Chassis

THE Monitor Motor Car Co., Columbus, Ohio, is producing two attractive styles of open bodies on four and six-cylinder chassis. High-grade standard units are used throughout. The prices are \$895 and \$1,095 respectively.

The two styles are a five-passenger touring and a four-passenger cloverleaf. The cowl line connecting hood and body

is unbroken, the rounding hood line blending with the roll edge of the body. Slanting windshield and double cowl are used. The four-passenger cloverleaf is a particularly smart job with plenty of room for passengers in the rear seat.

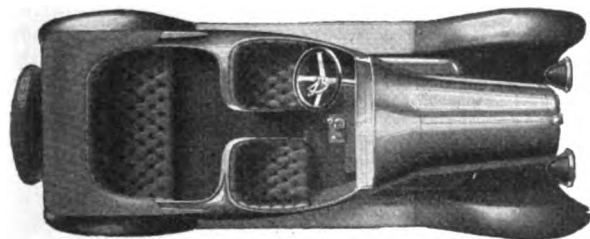
The six has a 7W Continental engine $3\frac{1}{4} \times 4\frac{1}{2}$ with three-speed gearset and disk clutch in unit. Electrical equipment is Heinze, the units including a magneto, starting motor, generator and horn. A Stromberg carbureter and Stewart vacuum tank are fed from a 15-gal. tank in the rear. Water is circulated by a centrifugal pump.

The rear axle is a floating design with roller bear-

ings and $3\frac{1}{2}$ per cent nickel gears. Brake drums are 2×12 in. Front springs are half elliptic and the rear three-quarter. They are Tuthill Titanic. The wheelbase is 117 in. and tires are 33×4 . The weight of the car complete is said to be 2500 lbs.

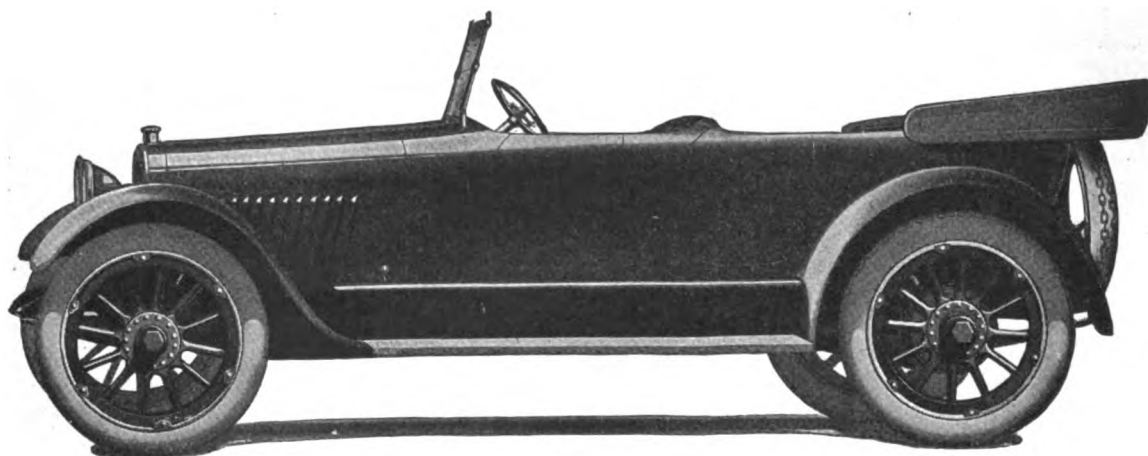
The equipment includes one-man top, Stewart speedometer, extra rim, full tool equipment and lock to prevent theft of the car. Five wire wheels are \$70 extra, and a sedan top \$200 extra.

The smaller model is equipped with a $3\frac{3}{4} \times 4\frac{1}{4}$ G. B. & S. four-cylinder engine, with thermo-syphon cooling and Schebler carbureter, and is otherwise similar in design to the six except that the wheelbase is 110 in. and tires are $32 \times 3\frac{1}{2}$.



The four-passenger is compact yet is roomy enough to give the maximum comfort

The five-passenger is a splendid example of modern design, the lines running from front to rear without a break



"Not 10 per cent of our people realize the tremendous task that is before us," says Secretary Wilson. Do *your* employees know just how the changes necessitated by war will affect *your* business? Read this masterly talk by Secretary of Labor Wilson to them. Call them together for fifteen minutes any day this week.

Are You Studying Changes in National Business?

*"One of Our Greatest Problems Will Be to
Change Rapidly from One Industry to Another"*

By William B. Wilson*

Secretary of Labor, U. S. A.

OUR country is facing—in fact, going through—the greatest crisis that has ever confronted it. My observation has been that possibly 90 or 95 per cent of our people are thoroughly in sympathy with the course that has been pursued in our international affairs, but I doubt if there is 10 per cent of our people who realize the tremendous task that is before us.

Modern warfare is entirely different from that of ancient times. Formerly an army might be an army of invasion, and live almost entirely upon the country through which it was passing, with a comparatively small number of people furnishing the necessary munitions for its sustenance and support.

Balance of Power in Industries

That has all been changed, and under warfare as it is now conducted more people are required in the industries in the rear for the support of an army than are required in the trenches at the front. Our country has been built up almost entirely upon the pioneer spirit, and the pioneer spirit is conducive to the development of individualism. It is only in a moderate way that we have been able to co-ordinate and organize our industries. They have not been organized in the manner that is necessary to meet the emergency we are now facing.

One of our great problems will be the problem of mobility, the changing rapidly from one line of industry to another line of industry, as the emergencies may require the change.

That means also the mobility of labor, because you cannot transfer your activities from one line of industry to another

line of industry without transferring your workers from the one line to the other. It means also the utilizing of one kind of skill that is akin to another kind of skill, rather than the same kind of skill, and when you undertake that in our industry, it means friction among the workers themselves.

In their efforts to protect themselves in their respective trades, to maintain the highest possible standard of wages and the best conditions obtainable, they have set up certain standards, certain limitations, certain regulations that they insist upon being complied with.

Standards Must Change

To meet our emergency now will require the removal of a great many of those standards, limitations and regulations. They cannot be removed arbitrarily; our people still have that individual spirit which would resent the attempt on your part, the attempt on the part of the Government to crush down their throats any of these changes.

When the changes are made, as they must eventually be made, they will have to be made in consultation with not only those who are the managers of industry, but those who are the representatives of the workers; and it is at that point that the Department of Labor of the United States Government and the various State departments of labor can be of service.

One of the functions that has devolved upon the Department of Labor, one of the things it was created to do, was to negotiate disputes arising between employers and employees, in order that industrial peace might be maintained. There is need for a governmental agency of that kind in times of peace; there is a greater need for it in times of war, when every energy we possess must be conserved and utilized to its utmost, in order to secure the standard of efficiency necessary for the protection of our institutions.

It has been the policy of the Department of Labor, and, I think, the policy of the various State departments having similar authority, not to endeavor to impose its viewpoint upon either the workers or the managements in any trade dispute that may arise, but rather to find some common ground that will be mutually acceptable, even though it may not be mutually satisfactory.

The Function of Mediation

In other words, the work of mediation is not a judicial work; it is not a judicial function; it is not to hear both sides and then determine the rights and the wrongs of the situation, and to pass and enforce its decision.

The work is diplomatic rather than judicial, and it is *in that spirit that we must approach the problem of the mobil-*

Coming in This Series

Are You Planning for Business Changes? July 4
Are You Adjusting Your Business to These Changes? .. July 11

*Paper read before the Editors' Conference of Business Papers in Washington, May 25.

izing of labor in the present crisis through which we are passing.

We must approach it from the standpoint of diplomacy rather than from the standpoint of judicial decisions.

It will also be necessary for us to utilize the agencies we have in our power or in our possession, for the purpose of finding employment or finding workers, rather, from one line of industry, less important, for another line of industry more important.

As an example of that, the Shipping Board is undertaking to build wooden vessels—the first time that it has been undertaken on a large, comprehensive scale since the coming of the steel vessel into operation in our ocean-going trade. The shipbuilding industry had practically died out of existence on our seaboard.

The question arose as to where the working people were to be obtained to do the work of building wooden ships, and that work naturally devolved upon the Department of Labor.

Our agencies were set in motion for the purpose of registering all of the shipwrights that could be obtained in the United States, who might be used as educators or trainers of other woodworkers who needed the additional knowledge known in shipbuilding, in order to make them shipwrights. We succeeded, in a period of some 3 or 4 days, in registering 20,000 shipwrights, to be used as a nucleus of that organization.

Still Building Wood Ships

Most people had overlooked the fact that we were still building wooden ships along our rivers, and, to a small extent, on our coasts, and when we came to scour the country, we found that we could get the nucleus of an organization.

One of our difficulties in the present situation will be the finding of farm labor to meet the peak of the load when the harvest time comes.

In the greater portion of the eastern part of our country our farming is mixed, and, by virtue of the fact that it is mixed farming, the farmer can very generally take care at harvest time of all of the crops he is able to prepare for in the spring, because the harvesting comes at different periods, just as his planting comes at different periods.

But there are certain parts of our country where they have specialized, where they do not engage in mixed farming, such as the cotton plantations of the South, the great wheat belt of the Middle West, and some of the fruit growing districts of the Pacific Coast.

During the past 3 years we have endeavored to supply that labor, and we have found it generally in the floating labor of the country. That floating labor, through advertisements carried in the post offices, in newspapers, and by other processes, was directed into the harvest fields when the harvest commenced, beginning with Missouri, Kansas, Oklahoma, and moving northward from there.

That floating labor is scarcely available for this year's harvest, and we must proceed to a different line of action in order to secure the harvesting of the grain that is so essential for our own support during the period of contest.

An experience of mine a great many years ago recurred to me, and we propose, with the assistance that we can get from the State labor organizations and agricultural organizations, the employers and workers in the industries, to carry it into effect. In 1885 I was mining iron away up in the little village of Clinton, in the State of New York, in the Mohawk Valley. At that time the Mohawk Valley had specialized in hop growing; it was the center of the hop-growing industry.

Helped to Pick Hops

To my surprise, when the hop-picking season came, every industry in the neighborhood shut down; the mines were closed, the furnace was shut down, the little factories and shops throughout the valley discontinued their operations; they had made their arrangements for the annual repairs and replacements to take place at that time, and they retained a sufficient number of workers to go through with their usual annual repairs and replacements, and the balance picked up bodily, men, women and children, and went out into the hop fields and made a holiday of picking hops.

The question of wages was unimportant to them, because they were not dependent upon hop picking for their livelihood. They were dependent upon other pursuits.

The wages in other pursuits might be important, might be primary, but the wages in hop picking were but secondary. They picked the hops, and the value of the proposition was that after

they had picked the hops, they had other employment to come back to.

And we hope this year to make a nation-wide drive on the same principle—the old barn-raising idea, the neighborly thought, getting our industries in the wheat belt, in the cotton belt, in the big fruit belts, to make their arrangements for the annual repairs and replacements during the harvest period, and then get our workmen into that barn-raising frame of mind, to go out in a neighborly way, for their own welfare and the welfare of the Republic, the welfare of the farmer as well as the welfare of the rest of us, to go out into the harvest fields and gather the harvest, and get every grain that is available, and then have a job that they can go back to after the harvest.

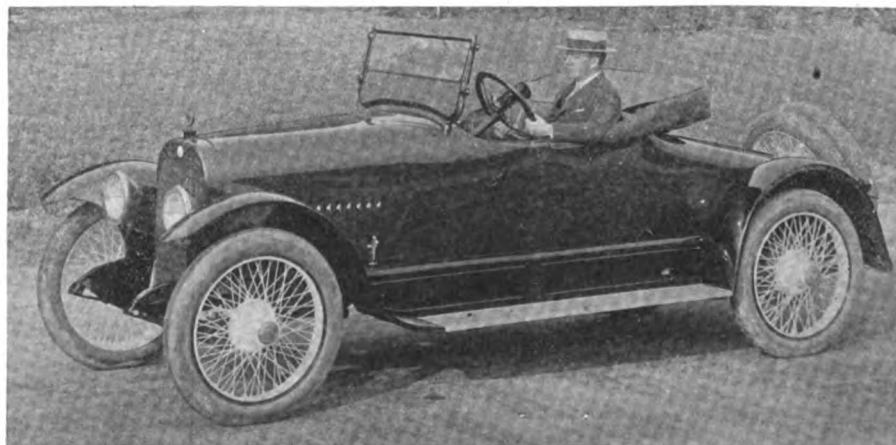
And that is one of the things that you gentlemen can be of great value to us in carrying into practical operation. I have selected Colonel G. L. Spangler, of Pennsylvania, a large coal operator in that State, and a banker and business man generally, who has volunteered his services—I have selected him to undertake the organizing of a drive of that kind, and I fully trust and believe that it will be successful in solving the problem.

The Department of Labor does not seek in any of these activities to supersede the activities of the State Departments of labor or of the State departments of agriculture. There is work enough for all. We are eager to have the State departments organized to the fullest extent that they can organize, and we, as a Federal Department, will not undertake to supersede them; we will simply undertake, to the best of our ability, to supplement the work that they are doing, and to extend it and connect it and co-ordinate it beyond State lines, where they have not the power to go.

New Jordan Sport Roadster

CLEVELAND, June 21—The Jordan Motor Car Co. has brought out a new model styled the Sixty Sport roadster. It is finished in three colors, a Mercedes red, a Liberty blue and a Briarcliff green. The new model is 200 lb. lighter than the previous model and is equipped with

special vanadium steel springs. The rear springs are 59 in. long. It is geared 41-12 to 1. The steering pillar is adjustable by ½-in. at the bracket, giving a range of 1 in. at the seat. The seat cushion is 10 in. thick and 21 in. deep and rests directly on the floor.



Jordan four-passenger sport roadster. Price, \$1,950 with wire wheels; \$1,850 with wood wheels

Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge, but be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a stamp and your correct name and address.

How to Run Your Service Station

Answering F. L. Butler, Smith-Foster Motor Car Co., Sharon, Pa.

THE question of organizing a service station along the most effective lines is such a large one that it is hard to know where to begin, and once started, it is much harder to know when to stop.

The term service is a little bit misleading. The function of a service station is not to give service strictly speaking, but to give satisfaction to all customers.

Satisfaction may be analyzed by stating that it is satisfactory work done at a satisfactory price in a satisfactory time.

Satisfactory work means that you must have competent workmen, adequate equipment, the right working conditions and proper supervision. We realize how hard it is to get competent workmen, but it is better to pay higher salaries than to employ inferior men. One incorrect job may spoil the profit on several other jobs.

Bonus System

It would be a good idea to give your men a bonus for doing work in minimum time and with maximum accuracy. In other words, you might give them a bonus boost for cutting down the time it takes them to do the work and also give a bonus for freedom from errors, come-backs, complaints, etc.

In order to obtain good workmen, it is essential that your working conditions be first class. Your shop should be comfortable, clean, light, warm in winter and cool in summer; you should have ice water, good washing facilities, proper lockers. Insist upon neatness and cleanliness in the shop. Do not allow any one to throw things around. Have system and order in your shop. The more ideal the working conditions, the more idealistic the workmen will be.

Be sure you have the best equipment for your particular case. Do not make the mistake of trying to get along with too few tools. By utilizing spare hours you can make devices which will cut many hours off the work. Use your ingenuity. Do not allow your mind to run in a rut. Constantly keep thinking of ways to shorten work and to do it better. On the other hand, do not buy or make too much equipment. Be sure that you are going to make a reasonable use of every tool you do acquire.

One mistake you should not allow your

men to make is using the wrong tool in the wrong place. There is a right tool for every piece of work. One nut requires a socket wrench, and if a mechanic is found using an S wrench on this nut he should be spoken to, and if he persists in making errors of this sort he should be disciplined or discharged. In order to carry out this idea most effectively, you will find it desirable to furnish each mechanic with a complete set of tools, and every once in a while the list of tools should be gone over and the mechanic made to replace any that are lost or broken.

Minimum Expense Per Job

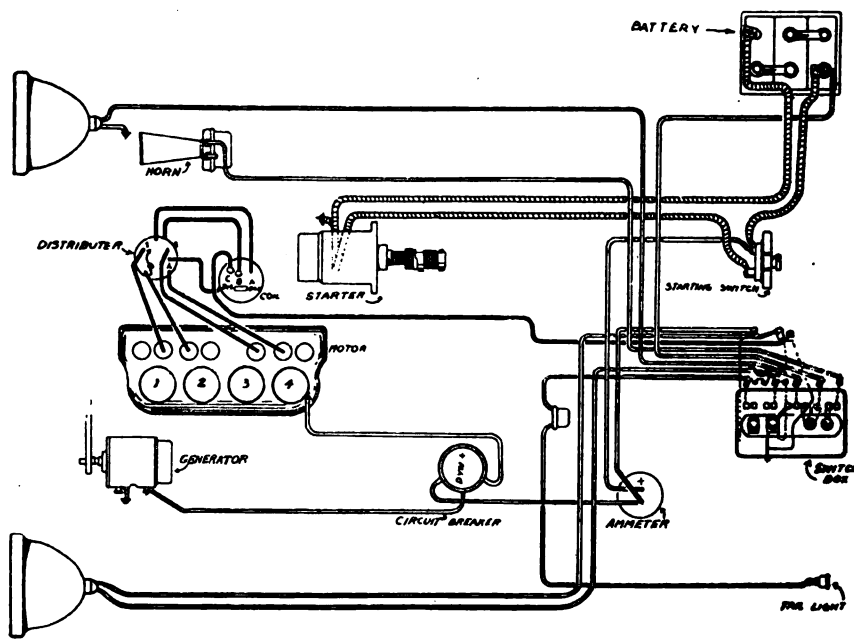
The fact that one of the elements of satisfaction is that work must be done with minimum expense to the customer does not mean that this is minimum expense per hour, but *per job*. It is not at all unlikely that if you charge a dollar an hour for work which is really worth a dollar an hour that the total repair bill in any given case will be less than if you exacted only 75 cents an hour for work which is only worth 75 cents an hour. When it comes to repairing cars, the best is almost invariably the cheapest. Consequently, you should not hesitate to make your hourly

rate as high as necessary, and we know that you will have no difficulty in convincing owners that you are right in charging the higher rate, provided, of course, that you do give extra value in increased skill and better equipment. It is simply the old argument that the best is the cheapest in the end. No man will question but that a \$4,000 car is better than a \$500 car, and if he has the money he does not object to paying the difference in the price. The same is true of repair work. The man who charges a dollar and gives a dollar's worth of work for that dollar is offering a much better article of service to the public in almost every case than the man who is charging 60 or 75 cents. It is more than worth the difference.

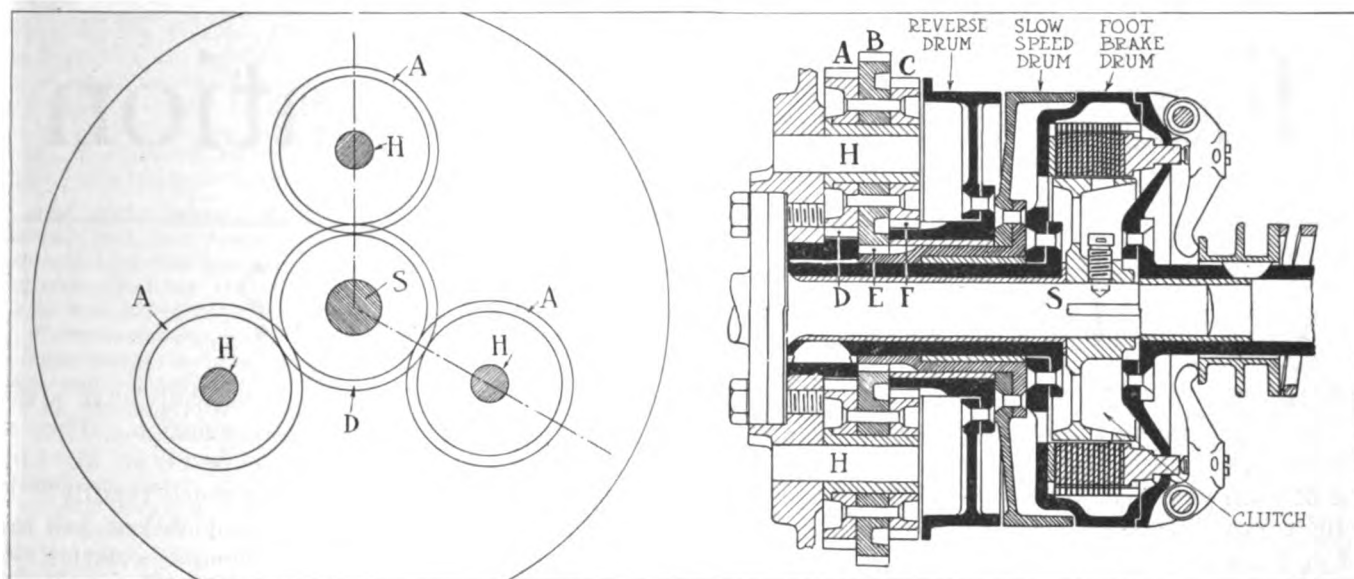
Satisfactory Job First Essential

The point here is that if you really give satisfaction, if your repair work is above reproach, the price the customer has to pay will be the last thing he will kick about. The first thing he kicks about is ineffective repairs. How many cases can you think of in your own town where owners have had just complaints against incompetent repairmen, not because of exorbitant charges but incompetent work? Where the repair work is done exceedingly well, so that there is no ground for complaint or where the work is done quickly, there are few men who will complain about the charge per hour, particularly when it is not hard to convince them that they get more actual work, more for their dollar than they would some place else for 60 or 75 cents. In other words, real high grade automobile mechanics, besides turning out a better article of work, work faster, so that there is a double economy in having extra good workmen.

You should have a system which will prevent all errors. Errors in charging time, oversights in doing repair work and all that sort of thing are almost



Wiring diagram for Overland model 75



Section through Ford transmission, with end view at left showing relation of gears. There are three sets of gears, A, B, C, each set of three being riveted together and rotating as a unit. Gears A mesh with gear D, which is attached to the clutch drum; gears B mesh with gear E, which is attached to the slow speed drum, and gears C mesh with gear F, which is attached to the reverse drum

inexcusable, and you should have a system which will prevent them in so far as possible.

One of the most important things in repair work is promptness in getting the job done. This is a difficult matter because the jobs in hand from day to day are uncertain, some are urgent and some are not, some take longer than expected. All these things make it difficult to predict just when a job will be done. At the same time you should try your best to have the work done by the time promised, and if it is not done call the owner up and explain the circumstances to him before he has a chance to be disappointed.

One of the greatest things in the repair business is courtesy. We know one dealer who hired a head waiter as manager of his service station simply because the man was courteous under all circumstances and never lost his temper no matter how abusive a patron became. We hope that this answers your question in a general way. We know that if you will study this letter carefully, you will find a good deal more in it than will appear at first reading.

How Ford Transmission Works

Answering G. S. Voorhies, O'Neill, Neb.

The operation of the Ford transmission is simple enough, but it is difficult to produce a drawing which will give a satisfactory picture of what is actually inside the transmission case and show how it works.

There are three studs, H, on which are mounted three sets of three gears, A, B and C, each set of gears being

riveted together and rotating on the studs. Meshing with these gears at all times are the three gears, D, E and F. F is connected solidly to the reverse drum, E to the slow speed drum and D to the brake drum, this housing also forming the driven member of the clutch, being connected to the driveshaft, as indicated. The flywheel is attached to the shaft, S, which is connected to the driving member of the multiple disk clutch. This shaft S also serves to carry the gears E and F and their sleeves connected to the reverse and slow speed drums respectively. In other words, the sleeves of these members are a fairly close fit on the shafts.

On high gear the drive is direct, power passing from the flywheel, through the shaft S, through the clutch housing, which also forms the brake drum, to the driveshaft.

On low gear the low speed drum is held stationary by its brake band, and at the same time the sets of gears, A, B, C, are being carried around and around by the flywheel. Since the slow speed drum is stationary, gear E is stationary, and consequently the gears B must rotate around it. This means that gears A and C must also rotate, since they are riveted together. Gears A mesh with the gear D, which is fastened to the brake drum housing. Consequently, the rotation of the gears A rotates the gear B, and thus turns the brake drum housing which is connected to the driveshaft.

On reverse gear the reverse drum is held stationary and consequently gear F is stationary and the gears C must rotate around F. This also rotates gear D and hence turns the driveshaft, but in the opposite direction. This point is difficult to understand, but if you study the matter sufficiently you will see that it is true.

Overland 75 Wiring Diagram

Editor Motor World: Please send us the wiring diagram of the starting and lighting system of a Model 75 Overland. We have the generator off this car and cannot make it generate any current. It will run as a motor and has plenty of power but no speed. The armature is not open in any of its windings but may be shorted.—W. K. Andrew, Nauvoo, Ala.

Answer—Be sure that the brushes are making proper contact. See that the spring pressure is sufficient so that they press on the commutator surface with enough force so that the contact is good. At the same time see that the pigtail wires leading from the brushes are solidly connected.

The brushes should be smooth and clean on the contact surface, and the commutator should also be smooth and clean. If it is only slightly rough or dirty, it may be cleaned with some very fine sandpaper. This is done by running the engine and bringing the sandpaper in contact with the rotating commutator.

It may be that the copper part of the commutator is worn down, leaving the mica sticking up; thus the brushes are held away from contact with the copper by the mica. If this is the case, the armature should be put in a lathe and the commutator turned down just enough to bring it to a true surface. Then the mica should be undercut.

Be sure that the trouble is in the generator and that its apparent failure to generate is not due to defective battery or field coil.

It is also possible that the cutout sticks, and you should operate the car and note whether the cutout closes at the proper time.

Editorial Observation

Dealers in Airplanes?

THE other day a learned scientist said it wouldn't be long before we all would be using the airplane as a sport machine. He holds that the active type of man who has gone in for red speedsters and racing cars will embrace the airplane with great gusto and do his speeding where—at present—there are no speed cops.

Supposing this does happen. It means that some one must sell airplanes, in great or small number, as the future may determine. At some future time it seems that there will be a retail market of at present unknown proportions for the airplane, and if such is to be the case there is no more logical man for this work than the motor car dealer. He is the man to whom the public will look.

Also, manufacturers of cars and other products, but mostly cars, are turning their attention to aviation. Parts of factories are being remodeled to build airplanes and the basis of a big industry is being laid. Of course, the war will absorb all of this product for some time to come; but when the war ends, what then?

With the termination of the war, these airplane factories will have to be remodeled for other purposes if airplanes cannot be sold for other than war work. Doubtless many of them will be turned back to their normal businesses, but some of them may make an effort to continue as airplane factories. To do this there must be a market, an outlet, for the product.

Furthermore, after the war we shall have a great corps of men who are skilled in aviation. They will be flyers, mechanics and experts of all kinds. These men will fit into airplane work readily. And because of their liking for it they doubtless will make an effort to hook up with some form of aviation business.

There are possibilities in mail service for airplanes, and right now thousands of people are thinking of the air machine and wondering if the day ever will come when planes will be as common as cars are to-day.

One never can tell how anything will develop in this age, but there is no sense in going off half-cocked and chasing a chimera. The one big point we wish to make is this: The motor car dealer, truly keeping abreast of the time in the gasoline field, should learn about the airplane. He should quietly investigate its possibilities. He should consider whether there are possibilities in it for him. To go out to-day and get an airplane agency with the intention of selling a thousand this year would be somewhat foolish, but the dealer nevertheless should consider what the future holds.

He should give thought to the subject, keep himself informed and be awake and up-to-the-minute on the subject, so that if the airplane business bobs up all of a sudden some day the dealer will have some well-laid plans that will enable him to jump in and get his share of it.

Take a Real Vacation

MAYBE you think you can't take a real vacation. And maybe you remember that you have read in these pages something of the same tone before. In the latter case you're right; in the former you're somewhat at error.

The vacation season is at hand, and nearly everyone is thinking of vacations, except perhaps some of the executives and managers who have not yet learned that the good executive is the man who can find plenty of time for a period of rest.

There are dealers who believe the business would not run if they went away for two weeks. Some day they will go away for longer than two weeks and the world will go on just the same. The biggest men who ever lived seemed indispensable but we got along without them.

The brain-worker who doesn't get a good rest now and then becomes inefficient. The business man who never takes a vacation generally stays in a rut while his

more modern competitors make rings around him. There are exceptions, it is true, but the general rule holds good. There is, in fact, one very big dealer who goes away for months at a time and is said to be more than a millionaire. He works, then plays.

So don't let the responsibilities of your business become too great—in your own mind. At the period that seems best dump all of your work onto somebody else's shoulders and go off and fish.

Specifications Are Valuable

Editor Motor World: The specifications that you are publishing the first issue of each month of passenger cars and trucks, I think is a bully idea, and I think that you are giving the dealers and distributors information which is almost invaluable to them.

A good many years ago when I was connected with the factory back East, the question of the general manager of the factory visiting other plants came up, and was urged by one of the members of the company, and his doing so was urged, and in presenting his side of the question, submitted an illustration of a man standing along close to a beautiful building, and only being able to see a small portion of it, calling attention most emphatically to the fact that his moving away a few hundred feet would broaden his line of vision, and enable him to see the building as a whole rather than just a small part.

Too often to-day we are so busy selling our own cars that we overlook the fact what the other fellow is doing, and do not keep in touch with the general march of progress of car and truck manufacturers.—W. W. Barnett, Denver, Col.

Watch Out for Him

Editor Motor World: We want to give you information about H. M. Bennett, who poses as a broker. He has a wife and two children who are traveling with him in a Briscoe four-passenger car. He recently came to this city and rented a house, also an office, and established credit with the undersigned and several others. He had some work done on his Briscoe car, bought a few accessories and stated he was going to Knoxville for a few days' visit. That was the last seen of him in Chattanooga.

The last heard of him he was in Washington, D. C. From that point he sent remittances to his landlord for the house rent he "forgot" to pay. His electric and water bills were taxed to the landlord.

He likewise "forgot" to pay us what he owed. Letters to him in care of General delivery, Washington, D. C., have evidently reached him, as they do not come back to us. We are passing this information along, in order that others may require cash of Mr. Bennett.—R. H. Hart, Hart's Garage, Chattanooga.

Short-Cut Danger

Editor Motor World: I have been reading with a great deal of interest your Repairshop Short Cuts, appearing in your most valuable magazine, and was especially interested in No. 1196, "Radiator Testing," by the use of illuminating gas, as described.

By plugging up the water connection openings and filling the radiator with illuminating gas, one is very likely to

Letters From MOTOR WORLD Readers

get a very high explosive mixture within the radiator owing to the fact that the radiator would probably be full of entrapped oxygen (air), and by the addition of gas would make an explosive mixture so that when a flame is applied to the leak it would be liable to carry back into the radiator and cause an explosion, not only wrecking the radiator but might injure the person making the test.—V. R. Hughes, Safety Engineer, Pacific Gas & Electric Co., San Francisco.

Munger Wins Rim Decision

NEW YORK, June 23—The Perlman Rim Corp. has again been hard hit, this time by a decision in favor of Louis de F. Munger, who sued the corporation for infringement of the Munger rim patent No. 638,588, of Dec. 5, 1899. This decision in favor of Munger parallels in importance to the rim industry the result in the suit of Perlman against the Firestone company recently dismissed on motion of counsel for Perlman.

The Perlman corporation will appeal the suit, which concerned only back royalties. The validity of the Perlman patent is not affected by the decision.

In the suit of Munger vs. Perlman, Judge Manton has decided that "a decree will be granted in favor of the plaintiff and against the defendant, directing the defendant to account before a master, and the plaintiff may recover a reasonable royalty upon the patent in suit under the rule established in Dowagiac Mfg. Co. vs. Union Flow Co."

What Every Salesman Should Know

About

Brakes

THE majority of American cars are made with two sets of brakes operating on single drums mounted on the rear wheels. In order that both sets of brakes can use this same drum, one is mounted so that it bears against the outside of the drum, while the other bears against the inside.

There is little doubt but that the internal expanding brake has many advantages over the external contracting in the matter of freedom from dirt accumulations. The external brake is accessible for mud and road dirt, with the result that it becomes worn and loose in the bearings, and the braking surface itself is apt to be inefficient, due to the fact that the caked mud and sand destroy the qualities of the woven asbestos fabric generally used as brake lining.

The internal expanding brake is efficient because it is easily kept clean. The brake drum forms a housing which makes the brake self-contained. Because of this the internal brake is generally the one which is used for the service brake. It is more frequently called into use and hence must be the more efficient of the two.

Companies which wish to improve their brakes and make them better than the average will often mount a side-by-side internal brake operating on the same drum; others going still further will make double internal expanding brakes operating on independent drums. Both of these deviations from the ordinary practice of double contracting and expanding brakes on a single drum mean increases in expenditure on brake lay-outs. In these days when cost is pared

down to the utmost, this is a serious objection which renders the practice unsatisfactory on low-price car design.

Foreign car manufacturers are opposed to the use of the double concentric brake. They either mount the side-by-side double internal brakes, or apply in more frequent instances a transmission brake. The latter practice has been growing somewhat in this country. Difficulties were found in the early applications of this brake which have since been considerably eliminated. The advantage of the transmission brake lies in its self-equalizing qualities, due to the action of the differential and to the fact that the leverage on the brake is multiplied by the reduction on the rear axle. It is therefore possible to use friction surfaces which would not be practicable in rear wheel brakes. For instance, a metal-to-metal brake is quite a satisfactory installation on the transmission because it can be lubricated and still apply sufficient pressure at the rear wheels to afford efficient braking. Metal-to-metal brakes at the rear wheels are difficult to make as efficient without having them extremely noisy.

Summing the matter up, internal and external brakes are used because they are low priced and fairly satisfactory. This is so because the service brake is the internal brake, which is inherently good because it is well housed, and the external or contracting brake being used as an emergency or hand brake is not so often called into use, and the car manufacturers feel that the gain in cost overcomes the constructional disadvantage.

The RETAIL NEWS

EAST

Peck Carriage & Harness Co., Hornell, N. Y., accessory dealer, has changed its name to Peck Motor Sales Co., Inc.

J. P. Oden and Jacob Corbett will conduct the garage and automobile agency of the J. P. Oden Co., West Philadelphia Street, Philadelphia.

New Garages

J. W. Richley Auto Co. (115½ x 234, eight stories, \$100,000).....York, Pa.

SOUTH

Southern Hardware & Woodstock Co., New Orleans, La., has completed salesrooms for motor car accessories at 715 Baronne Street.

Lewis R. Dorris, who formerly conducted the Dorris Auto Shop, has returned to Nashville after spending over a year in Arizona and has opened a salesroom at 134-136 Third Avenue, North, where he will also conduct a repair shop.

H. I. Walters, branch manager Goodyear Tire & Rubber Co., Nashville, has arranged for additional stockroom space, which is required by the increased business in Middle Tennessee.

Auto Supply Co., Inc., of Nashville, which has been reorganized and the capital stock increased from \$5,000 to \$10,000, will move to 804 Broadway, on automobile row.

New Garages

R. S. Hardison.....Columbia, Tenn.

MIDDLE WEST

Auto Electric Service Co., Milwaukee, has been organized to establish an exclusive electric service for motorists.

Peter M. Wolf & Sons, Plymouth, Wis., have disposed of the mechanical department of their garage to Peters Bros.

R. E. Tamblingson, Clinton, Wis., has resigned as manager of the repair shop of the Drake Garage and has leased the mechanical department of the Clinton Motor Service Co., which he will conduct on his own account.

A. F. Eckstein, Milwaukee, Wis., one of the pioneer motor car dealers and salesmen of Milwaukee, has established a used car market. He also will continue to operate the Eckstein Auto Livery.

Davis Motor Car Co., Ashland, Wis., has taken over the tire and accessory store of the Ashland Buick Co.

Parkview Auto Garage & Repair Co., Detroit, has changed its name to the Parkview Sales Co. and incorporated for \$3,000.

Valley City Motor Car Co., Grand Rapids, Mich., will open a Dodge sales and service station.

Furniture City Vulcanizing Co., Grand Rapids, Mich., has moved into its new quarters.

James Foster, Grand Rapids, Mich., formerly Cole dealer in Flint, Mich., affiliated with the Cole Auto Sales Co. in Grand Rapids. For the present the salesroom and garage will be located at the Storage Garage.

Square Deal Garage, Detroit, has been incorporated with a capital of \$6,000.

Amos Messner, Benton Harbor, Mich., who is a local Ford dealer, will erect an assembling station.

U. S. Auto Supply Co., Coldwater, Mich., will open with a complete stock of automobile accessories.

New Garages

F. L. Reinhardt.....Neillsville, Wis.
Otto & Newland (70 x 100)....Manston, Wis.

A. H. Proctor.....Columbus, Ohio
Valley Inn Garage (\$30,000)....Neenah, Wis.
Marathon Motor Car Co. (51 x 75),
Merrill, Wis.

Mahanoy City Motor Car Co.,
Mahanoy City, Mich.

Clarence D'Vincent.....Rogers City, Mich.

J. D. Kitchen.....Muskegon, Mich.

Curtis Rubber Co. (30 x 109, \$25,000),
Milwaukee

J. A. Rilling.....Abbotsford, Wis.

C. F. Dallmann (72 x 82).....Antigo, Wis.

Jacobson & Austin Co. (183 x 113),
Madison, Wis.

Monitor Auto Co. (60 x 120)....Lancaster, Wis.

George Burke.....Frederick, Mich.

John Goodspeed.....Ann Arbor, Mich.

Beelby Weureither Motor Sales Co.,
Grand Rapids, Mich.

S. S. Corl (\$35,000).....Grand Rapids, Mich.

Leslie Smith.....Port Huron, Mich.

Jans Smith.....Port Huron, Mich.

Garden Court Garage.....Detroit, Mich.

Horst & Strietor (\$26,000).....Moline, Ill.

Pierce & Caldwell (\$10,000).....Decatur, Ill.

Overland-Rockford Co......Rockford, Ill.

COAST

Prough Bros., Bakersfield, Cal., have opened Chevrolet salesrooms.

O. F. Meyer has opened tire salesrooms and vulcanizing plant at Taft, Cal. Business is conducted under the name of Taft Double Tread Tire Works.

Downtown Garage, Bakersfield, Cal., has been remodeled.

A. Dowd, Taft, Cal., has acquired the Commercial Garage.

E. Clair Livermore has bought the Superior Vulcanizing Works at Taft, Cal.

J. A. Jackson, former owner of the Superior Vulcanizing Works at Taft, Cal., has taken the Maxwell agency.

East Side Garage, Bakersfield, Cal., have taken the Jeffery line and will also handle the Vim truck.

Northwest Auto Co., Portland, has been appointed distributor for Miller tires in Oregon.

Ben Dunn, for years connected with the Northwest Buick Co., Seattle, as Delco and service man, has gone into business. He will specialize on Delco repair work.

C. O. Radford Co., Seattle, will have a story added to its present one-story garage.

William W. Robinson, of the William W. Robinson Motor Co., Hupmobile agent, Everett, Wash., will construct a salesroom and service station 25 x 70 at Rucker Avenue and Hewitt Street. Robinson has recently taken over the Oakland agency.

Fred Chandler, North Yakima, Wash., has purchased the Sunnyside Garage from Webber & Brownfield, at Sunnyside, Wash. He will add the Ford and Overland lines.

Tyre Shop, Bellingham, Wash., has moved to larger quarters.

J. R. Bolster, Bellingham, Wash., has opened a service station, where vulcanizing work will be done.

Spokane Auto Market & Laundry, Spokane, Wash., has opened a shop.

Ritzville Garage, Ritzville, Wash., has recently taken over the agency for the Saxon for Adams County.

Pacific Tire Co., Tacoma, Wash., has opened a vulcanizing plant.

New Garages

J. G. Robinson & Co. (60 x 100),
Kirkland, Wash.

Ford Garage (100 x 119).....Taft, Cal.
Interstate Garage.....East Bakersfield, Cal.
Lierly & Sons.....Taft, Cal.
R. M. Wade Co. (80 x 130).....Spokane

SOUTHWEST

Kinsley Garage, Kinsley, Kan., has been enlarged.

Beaumont Motor Sales Co., El Dorado, Kan., is the name of a new firm.

E. Phillips, Emporia, Kan., has opened a refinishing shop.

J. Mott Douglass, Senath, Mo., Ford agent, has bought the repair shop of Alva Wilkinson at Kennett, Mo. He will conduct it as the Owl Garage.

Dlew Edmonston and Ernest Hull, Tawanda, Kan., have bought the C. G. Wittenborn garage.

C. O. Richardson, Slater, Mo., has bought the Rock Barn Garage.

L. J. Frederickson Tire Co., Hutchinson, Kan., has opened a branch in the Salt City Business College block.

H. A. Dougherty Motor Co., Kansas City, Mo., has taken a five-year lease on the former plant of the Henry Weis Manufacturing Co. The plant will be used for body and paint departments.

Robert Dyer, Troy, Kan., has bought the Marcum Garage.

Nathan C. Foster, Pratt, Kan., has bought the Shackleford Garage.

J. N. Arthur, Effingham, Kan., has leased a building in Atchison, Kan., and will open a salesroom.

James Motor Car Co., St. James, Mo., has leased the north room of the Bray Supply Co., and is fitting it up as a salesroom.

Ernest Watts, Harlan, Kan., bought the W. Thompson garage.

R. E. Graham, Burlington, Kan., has sold the Burlington Garage to James H. Campbell, Kansas City, Mo.

John Ackerman, Independence, Kan., has bought the Central Garage.

Prestolite Battery Service Station, Dodge City, Kan., has opened.

Oakland Motor Sales Co., Cape Girardeau, Mo., is a new firm on Main Street.

Topeka Auto Tire Co., Topeka, Kan., will move soon.

Jess Smith, Smith Center, Kan., has bought the interest of Dr. Wheatcroft in the Smith & Co. corner garage.

John Ackard, Colby, Kan., has leased the new Ball Garage, and will handle the Ford exclusively.

Norton Tire Repair Co., Norton, Kan., has opened a repair shop.

Auto Supply Co., Dodge City, Kan., has been organized with \$25,000 capital stock, and has a salesroom.

Lancaster & Bittner, Kinsley, Kan., have sold the Kinsley Garage to Frank Dixon & Son.

O. H. Maxwell, Kansas City, Mo., formerly president of the Maxwell, Hay Co., has opened the Maxwell-Ford Sales Co. to distribute the Simplex trailer, the Evans automatic jack and the auto power transmitter.

Taylor & Smith, Mound Valley, Kan., sold their garage to B. R. Shroder, Edna, Kan.

F. E. Workman and Elmer J. Ross, Parsons, Kan., have bought the garage and salesrooms of Hans Brothers at Coffeyville.

J. H. Campbell, Kansas City, Kan., has bought the Burlington Garage at Burlington, Kan., from John Graham.

Hershey & Chatelle, Smith Center, Kan., is the new firm at the Oakland Garage. They will handle the Hudson Super-Six and the Smith Form-a-Truck.

Moore Brothers Co., Hutchinson, Kan., has opened a tire repair shop.

G. R. Bridges, Nickerson, Kan., has bought the Nickerson Garage.

Charles Roice, Osborne, Kan., has bought George Bradley's interest in the Roice and Bradley Garage.

Birch Garage, Junction City, Kan., is being remodeled.

Barna & Nelson, Marquette, Kan., owners of a garage, have dissolved partnership.

Auto Supply & Tire Co., Wichita, Kan., has leased the building being erected by J. W. and J. H. Skaer. The building will be 85 x 159 feet, three stories high and cost \$70,000.

West Motor Car Co., Topeka, Kan., agent for the Studebaker and Chevrolet, will be in its new home July 1.

Lemaster Garage, Ottawa, Kan., has given up the agency for the Maxwell and will devote itself to service and repairing exclusively.

Auto Tire & Supply Co., Larned, Kan., has moved into its new building.

Zachelle Bros., Burlington, Kan., have opened a storage battery service station.

Long & Lawson, Beaver, Okla., whose new building for their garage was practically completed, had the front and south side of it blown down by the recent high winds.

Conover & Sutes, Bokchito, Okla., had their iron garage destroyed by a recent storm.

Gregory & Zimmerman, Plattsburg, Mo., are remodeling their garage.

C. M. Mason, Eldorado Springs, Mo., is building an addition to his garage.

Kramer & Carpenter, Burlington Junction, Mo., have leased the tire department and repair shop of the Sewell Garage in Marysville, Mo.

John Sullivan, Gallatin, Mo., has bought a half interest in the Overland Garage.

Tanner Motor Co., Cameron, Mo., has leased the Este Building and will build an addition to be used as a repair shop.

J. I. Freshley, Lohman, Mo., has bought the Lohman Garage and will have the agency for the Allen.

F. A. Wagner, Russellville, Mo., has bought his partner's interest in the Wagner & Nance Garage.

C. M. Swearingen, Woodville, Tex., has purchased the East Texas Garage.

Firestone Sales Agency, Dallas, Tex., has begun the erection of a new building.

Henry Sanders, Wharton, Tex., has sold his garage at Sealy and will locate here, starting a service car between Wharton and Bay City.

Ford Service Station, Memphis, Tex., is in its new building.

J. C. Leary, Venus, Tex., has bought the Sisk Garage.

Missouri Motor Co., Higginsville, Mo., whose garage was recently damaged by fire, will rebuild.

Welling Motor Equipment Co., St. Louis, Mo., has taken the agency for the Olymplan.

E. & S. Haskins, Ottawa, Kan., have purchased an interest in the Grant Auto Co. The firm will be known as Haskins Bros.

Donald McMullen, Highland, Kan., has purchased the R. F. Johl Garage.

R. M. Robinson, Eldorado, Kan., has opened a repair shop. He will also carry accessories.

A. E. Sells, Ottawa, Kan., has bought the Stevenson garage in Richmond.

Maynard Huggins and R. L. Huggins, Earle, Ark., have bought the interest of R. A. Scott and H. A. Morrison in the Service Auto Co.

Igou Motor Co., St. Louis, has opened a new salesroom at 2907 Locust Street for Selden trucks.

Curby, Yates & McLaughlin, Emporia, Kan., have opened a repair shop.

Paul Harris, St. Louis, has bought the controlling interest of the Auto Battery & Supply Co. at 3912 Washington Boulevard.

Phil Goldfish, Kansas City, Mo., has opened a Gould storage battery service station.

H. Bollwerk & Bro., St. Louis, are selling agents for Overton truck attachment for Fords.

Welling Motor Equipment Co., St. Louis, will distribute the Olymplan.

New Garages

American Garage.....Kansas City, Mo.
D. S. B. Motor Co.....St. Joseph
O. D. Gauthier.....Hill City, Kan.
Klam Garage.....Detroit, Kan.
Herman Wetzig.....Junction City, Kan.
Charles Lightfoot.....Great Bend, Kan.
D. F. Danmore & Edward Madden,

Salina, Kan.
Edward Fletchell & Son.....Sabetha, Kan.
C. R. Smith.....Ottawa, Kan.
New Broadway Garage.....Valley Falls, Kan.
Leavel Garage.....Leavenworth, Kan.
H. Caraway.....Nederland, Tex.
John Avon.....Colgate, Okla.
O. Noisworthy.....Clarkton, Mo.
William Cave (65 x 100).....Lee's Summit, Mo.
R. P. Rupard (50 x 150),

Eldorado Springs, Mo.
F. J. Schmidt.....Gerald, Mo.
L. N. Hartman.....Scottville, Kan.
Singleton Supply Co.....Neodesha, Kan.
Central Garage.....Waterville, Kan.
Billings Garage.....Pittsburgh, Kan.
C. & A. Auto Co.....Parsons, Kan.
M. Van Dunham.....Chickasha, Okla.
Rolland & Pitman.....Cement, Okla.
Joe Boyle.....Caddo, Okla.
B. F. Talley.....Calumet, Okla.
C. M. Blecker & Co.....Texarkana, Ark.
Tidwell, Mitchell.....Danville, Ark.
Camden Overland Co.....Camden, Ark.
C. G. Campbell & Co.....Hampton, Ark.
Allen & Allen.....Arkadelphia, Ark.
J. A. Guthrie.....Campan, Tex.
Reuben Smith.....Carthage, Tex.
Mitchell Electric Garage.....Dallas
M. R. Cochran.....Fayette, Mo.
Stillwell & Shock.....Warrensburg, Mo.
Simpson Garage.....Parsons, Kan.
Ed Parsley.....Ottawa, Kan.

NORTHWEST

J. Porter Kennedy and M. S. Spencer, Sheridan, Wyo., have formed the Kennedy-Spencer Auto Co., and have taken the local Mitchell agency.

J. L. Engler, Oldham, S. D., has bought the interest of his partner, Frank B. Blank, in the Oldham Auto Co.

Exley Garage, Lincoln, Neb., was badly damaged by fire.

Clemons Brothers, Audubon, Iowa, have sold their garage at Elkhorn and will probably open another in Audubon.

W. J. Herkenrath, Portsmouth, Iowa, has sold his interest in the Portsmouth Auto Co. to Mathew Ohlinger and Lew Raymond.

J. I. Foss, Beaver City, Neb., has completed a new accessory house.

T. J. Mehuron, Beatrice, Neb., has opened a tire repair shop.

A. F. Nugent and F. C. Shumaker, Lodge Pole, Neb., have bought a garage at Laramie, Wyo.

Benjamin Ferris, Silver Creek, Neb., has bought the interest of Jasen House in the Lincoln Highway Garage, and will conduct the business under the firm name of Karges & Ferris.

Leander Fangmann, Humphrey, Neb., has bought a garage at Platte Center.

Earl Le Bounty, Moorfield, Neb., has bought the Moorfield Garage from Elson & Nelson.

F. I. Kaufman, Dawson, S. D., is building an addition, 16 x 24, to his garage.

Bert Vestal, Ingomar, Mont., is building an addition to his garage.

Selsmer Bros., Cloquet, Minn., opened a tire shop.

E. A. Abshire, Sidney, Iowa, has sold his garage to his son Millard.

John Walters, Kemmerer, Wyo., has bought the garage of Charles Budd, Marleton, Wyo.

T. W. Detamore, Silver Creek, Neb., has bought the Lincoln Highway Garage.

Albert Owens and William Lehberger, Milligen, Neb., have taken over the Placek Garage. The new firm name will be the Milligen Auto Co.

Wickersham Auto Co., Strahan, Iowa, sold its garage and automobile business to Harold Peterson, who will conduct the business under the name of the Strahan Auto Co.

Stecker Brothers, Fairbury, Neb., have opened a repair shop.

New & Williams have rented the brick garage at the south end of Main Street, Hildreth, Neb.

W. T. Biggs and Lake Bear, Anita, Iowa, who have been conducting the White Pole Garage, have dissolved partnership. Biggs keeps the White Pole Garage and Bear, with his brother, John Bear, has opened the Anita Auto Co.

Joseph Piper, Shenandoah, Iowa, sold the Piper Garage to A. W. Raymond, Omaha, Neb., and J. W. Haas, Amherst, Neb.

Cloyd Forney, Deep River, Iowa, has bought an interest in the Sterrett Garage.

E. S. Zern, Harrisburg, Neb., has bought the interest of J. C. Dugger in the Harrisburg Garage.

Hershel Fay, Kearney, Neb., has opened a repair shop at Ravenna, Neb.

Joseph Heller, Waverley, Neb., has bought the garage at Louisville, Neb.

S. E. Grindall & Son, Bovey, Minn., bought the Roan Hotel and will remodel it into a garage.

W. A. Kennedy, Opheim, Mont., has bought the Opheim Garage.

Milk River Valley Garage, Glasgow, Mont., burned.

Beutler Garage, St. Cloud, Minn., burned.

Huron Auto & Supply Co., Hudson, S. D., bought the Giard Garage.

A. K. Webster, Baker, Mont., has bought the Baker Auto Co. from J. W. Zook.

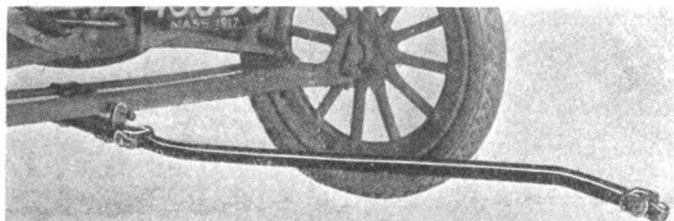
Public Service Auto Co., Jamestown, N. D., opened a repair shop.

New Garages

George E. Horn.....Phillips, Neb.
Red Willow Auto Co. Garage.....McCook, Neb.
J. Romans Co.....Denison, Iowa
Frank & Anton Kraci.....Schuyler, Neb.
Alonzo Osler & C. E. Denton.....Carson, Iowa
Mohrman & Schuman Co.....Dell Rapids, S. D.
A. F. Burger (66 x 100).....De Witt, Neb.
Victor Lang (\$5000).....Beatrice, Neb.
H. O. Tennes & Son.....Bird Island, Minn.
R. L. Merritt.....Butte, Mont.
Boyd Romans Co.....Aberdeen, S. D.
D. E. Anderson.....Ellendale, Minn.
Clinton Peck & Harry Harding (50 x 90),

Winifred, Mont.
Boyle & Mather.....Eveleth, Minn.
A. L. Danek.....Silver Lake, Minn.
C. W. Clark (\$10,000).....Edgeley, N. D.
John De Cartin (25 x 80).....Ramona, S. D.
R. A. Berkner.....Milbank, S. D.
Mueller & Rusche.....Bancroft, S. D.
Claire & Ben Davis.....Hinsdale, Mont.
John Mulvey.....New Rockford, N. D.
Pederson & Juvland.....Erskine, Minn.
Oates & Beelman.....Gauvin Valley, S. D.
J. L. Hall.....Volga, S. D.
Dehmel & Son.....Bertha, Minn.
Axej Palm.....Ruthon, Minn.
R. A. Bernau.....Cottonwood, S. D.
F. M. Lewis.....Aberdeen, S. D.
Earnest Reincke.....Henry, S. D.
Spaulding Bros.Aberdeen, S. D.
Emil Peterson.....Middle River, Minn.
R. A. Bloencke.....Cobdin, Minn.
H. Bauer & Son.....Alpha, Minn.
Nelson & Jensen (50 x 160).....Wabasso, Minn.
F. B. Knoff.....Madison Lake, Minn.
Ole O. Hagan.....Dennison, Minn.

Accessories



DYER TOURING DEVICE

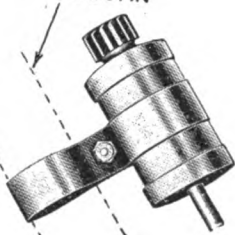
It allows one man to bring in a disabled Ford, since the tow bar not only pulls the crippled vehicle but also steers it. The bar is pivoted at the center of the axle of the disabled car and

is clamped to the tie rod, so that the turning of the tow car swings the wheels of the other car. It may be attached in a moment. Price \$6.—G. H. Dyer Co., 155 Brookline St., Cambridge.

LITE-A-FORD DIMMING

Practically a constant voltage is obtained from the Ford magneto by installing a series of coils which strengthens the current at low speeds and reduces it at high speeds. A switch is mounted on the steering post so that the lights may be dimmed in when driving in cities. It may be installed in 15 min. Price \$2.50.—Hastings Mfg. Co., Hastings, Mich.

STEERING COLUMN



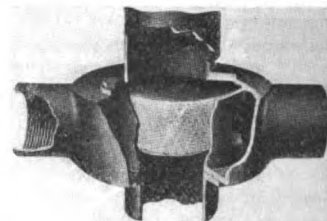
DYER REBABBITTING JIG

For rebabbitting Ford connecting-rods. It is only necessary to remove one nut and the cap to place the rod in position. Price \$1.50.—G. H. Dyer Co., Cambridge, Mass.



LIBERTY FLAG HOLDER

It carries five flags. Silk flags mounted on steel shafts are furnished with the holder. The silk is specially heavy and carefully stitched to prevent fraying in the wind.—Stanley Mfg. Co., Dayton.

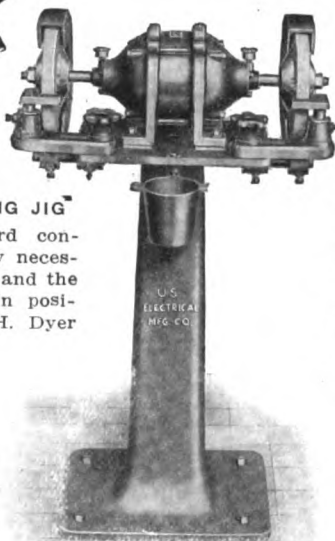


THURSTON GASIFIER

Better vaporization and a more homogeneous mixture are obtained by the application of exhaust heat and the use of a wire gauze screen, which is contained in the heating unit which may be inserted between the manifold and the carburetor on any car. It is readily installed. Price \$20 to \$30, depending on size and type of engine.—The Savage Tire Corp., San Diego, Cal.

U. S. GRINDER

An electric grinding and buffing tool is unique in that the motor is self-contained, the wheels being driven directly from the ends of the armature shaft. The housing is dust-proof and the armature rotates on ball bearings. It runs at 1800 or 3600 r.p.m. and on various A.C. and D.C. voltages. It is low in price because of simplicity of design and the use of modern production methods.—U. S. Electrical Mfg. Co., 459 E. Third St., Los Angeles.

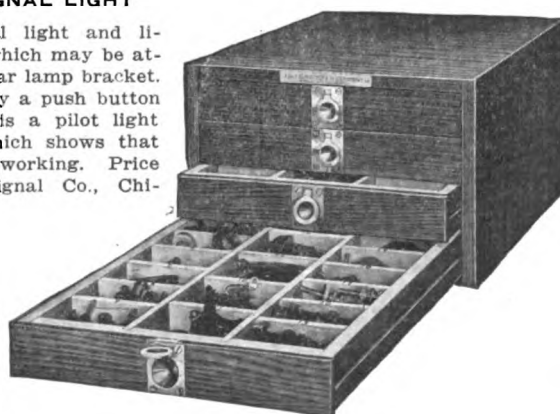
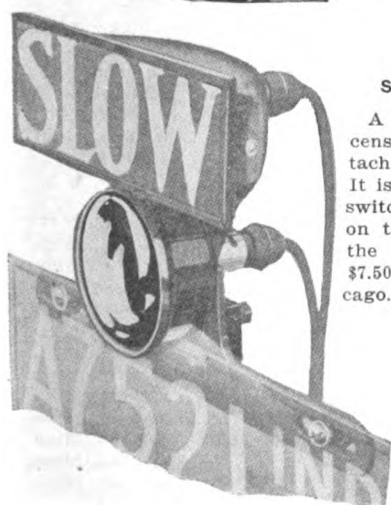


FAN FLAME SPARK PLUG

A small fan is mounted on the end of the central electrode and the movement of the gas in the cylinders causes it to rotate, throwing off oil and carbon deposit and keeping the spark plug points and the porcelain clean. The spark jumps from the edges of the fan blades to the shell of the plug. Price \$1.—Fan Flame Spark Plug, Yonkers, N. Y.

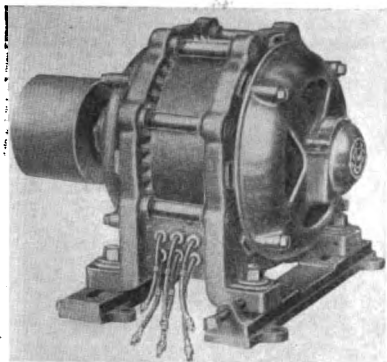
SAFETY SIGNAL LIGHT

A rear signal light and license bracket which may be attached to the rear lamp bracket. It is operated by a push button switch. There is a pilot light on the dash which shows that the signal is working. Price \$7.50.—Motor Signal Co., Chicago.



CABINET FOR SMALL PARTS

The Niehoff cash register for contact parts is to facilitate the handling of small parts such as breaker points. It is 9 in. high, 10 in. wide and 14 in. long and has 4 drawers with 17 compartments in each. It is supplied with a full assortment of parts to fit all popular makes of cars and is given with the assortment, which lists at \$115.—Paul C. Niehoff, Clark street, at Kinzie, Chicago.



U. S. ELECTRIC MOTORS

Made in a variety of styles for various shop uses. Exceptional reliability is claimed because no paper is used in the construction of the rotors and because they have heavy end rings and large area of contact between the rings and bars. High efficiency and low operating temperature are advantages claimed for this product. Exposed laminations through rigid riveted frames facilitate the radiation of heat and eliminate dead air pockets, and liberal openings in the motor casing allow a circulation of air so that there will be no hot spots.—U. S. Electrical Mfg. Co., 459 E. Third St., Los Angeles.

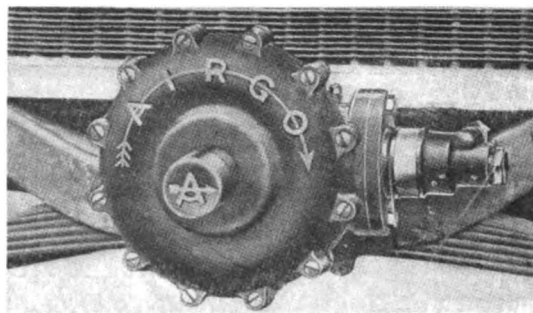
PFAU KEY FOR FORDS

Combination switch key, vibrator wrench, Prest-O-Lite tank key.—Pfauf Mfg. Co., Cincinnati.



GANT METER

It measures rope, wire, cable and tubing, the dial registering from the fraction of a foot up to 100 ft., when it repeats. Price \$5. Canada, \$8.—John A. Chumbley & Co., Nashville, Tenn.

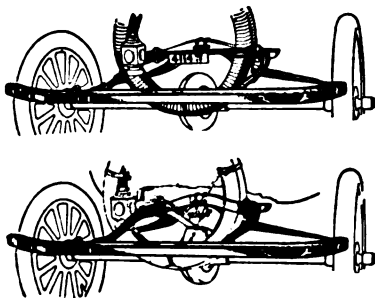


AIRGO STARTER FOR FORDS

A compressed air starter is mounted on the front of the Ford in place of the starting crank and which is operated by a lever on the steering wheel. Air pressure of 300 lbs. is carried in a tank under the rear of the car and the pressure is automatically maintained in this tank by the starter, which also acts as a pump. This air may be used for inflating the tires. Price \$39.—General Appliance Co., Detroit.

GEMCO REAR BUMPER FOR FORDS

A bumper which protects the rear of the Ford from collision. It may be clamped on in a few minutes. It is also combined with a tire carrier. It is finished in black, nickel or black and nickel. Price of plain bumper, \$5.90 to \$8.30, depending on size and finish and combination bumper, \$9.75 to \$11.75. Gemco Mfg. Co., 742 St. Pierce St., Milwaukee.



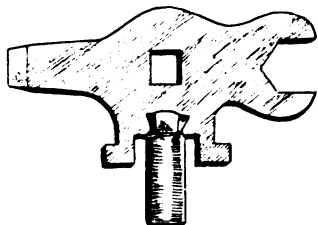
SERVICE AUTO WHEEL

A demountable wheel installation for the light car. It comprises four flange threaded sleeves, placed over the original wheel hubs, and driving the wheel through six flange studs. The original wooden wheels are bored out to fit the flanged hub, and are held in place by a threaded flange and hub cap. A spare wooden wheel is included in the set, which costs

\$20.—Service Auto Wheel Co., 436 Bond Ave., Grand Rapids, Mich.

TU-FORD VALVE TOOL

It has three parts—a spring seat pocket, a rest, and a lever connecting the two. The tool automatically holds the spring in the compressed position. The price, \$1.—Wallace C. Hood Service Bureau, 1199 Woodward Ave., Detroit, Mich.



The Motorscope Permits Inspection of Combustion

Color of Flame, as Seen Through Small Glass Windows, Shows the Quality of the Mixture—Allows Best Carbureter Adjustment

The Motorscope is a device permitting the operator to look into the combustion chamber and determine the performance of the engine by the quality of the flame. It is a metal bushing containing three glass windows, screwed into the spark plug opening and carrying the spark plug. One is placed in each cylinder in turn or a set may be used during the time that the engine is being tested and adjusted. Performance, primarily, depends upon one thing—the complete and proper combustion of the gas on each explosion stroke. The Motorscope offers a visible index of this combustion, and shows the operator at a glance whether the mixture is too rich, too lean, correct, or whether the plugs are inoperative, or the compression poor. A test made on a Dodge Brothers car by a representative of Motor World showed that:

- 1—A correct mixture was evidenced by a regular, blue flame.
- 2—A rich mixture was shown by a yellow flame.

3—A weak mixture was indicated by a weak flame.

4—Skipping, or dead cylinders by an intermittent, or no flame.

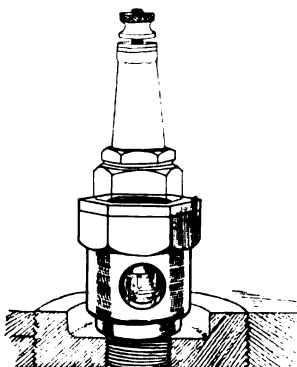
5—Poor compression, dirty plugs, weak

spark were evidenced by a weak flame in that cylinder.

6—Excess oil was evidenced by small particles of yellow flame.

It is to be understood that the Motorscope is only a test device, and is kept on the engine only during the time that the trouble is being located and the necessary adjustments made. When a perfect burning mixture is obtained, the flame has the same blue color as a gas burner flame; the yellow color in the rich mixture is due to the presence of unburned incandescent carbon particles. Fineness of adjustment, not even possible on a dynamometer, is obtainable with the Motorscope due to the fact that the horsepower output is not greatly affected by a slightly rich mixture, though the slightly rich mixture is readily shown by the device.

The price of a single Motorscope for any car is \$2; in sets, \$1.75 each. It is made by the Detroit Accessories Corp., 419 Hillger Avenue, Detroit, Mich.



The Motorscope is only used while the cylinder is being tested. Observation of the flame quickly shows whether the mixture is correct

Repairshop Shortcuts

From The Motor World Roadman

(No. 1235) LATHE GRINDING ATTACHMENT

Cylinders may be ground on a lathe, providing the grinding attachment is accurately made, and the work carefully done. The attachment is in two parts—the first, an angle plate, bolted to the lathe carriage, for holding the cylinder, and second, the rotating grinding head, attached to the spindle of the lathe. The angle plate is cast iron, holding the cylinder in a horizontal position by bolts through the cylinder flanges, and being attached to the carriage, permits the cylinder to be fed onto the grinding wheel. As stated, the rotating grinding head is attached to the lathe spindle. It is cast iron, and in two main parts dovetailed together so that the grinding wheel may be offset. The grinding wheel is about $\frac{1}{8}$ in. smaller than the cylinder to be ground, and is separately driven from a small electric motor through a central flexible shaft passing through the hollow lathe spindle. By offsetting the grinding head, rotation of the spindle causes the wheel to pass over the inside surface of the cylinder, and the wheel, in turning, grinds off the excess metal as the cylinder is fed slowly back and forth onto the wheel. As is the case with all fixtures of this nature, careful and accurate work is essential to success. This attachment has, however, proved entirely satisfactory.—Packard-Missouri Co., St. Louis, Mo.

(No. 1236) EXPANDING PISTON REAMER

A wrist-pin may be made into an expanding reamer for reaming out wrist-pin bushings when in the piston. Cutting edges are first ground onto the wrist pin, and a solid shank, or handle for a wrench riveted to the uncut end. The teeth of the reamer are then case hardened, and ground to the required size. Expansion is effected by the pressure of a split nut placed in the open end of the reamer, and forced outward by a pipe plug. The reamer is placed in the bushing to be reamed, expanded, and drawn back through the bushing. During the work, the bushing on the opposite side serves as a guide to the reamer, keeping the cutting edges in

alignment.—H. A. Scott Co., Hudson, Kalamazoo.

(No. 1237) SNAPPING IN VALVES

Many repairmen prefer never to grind a new valve to a seat. They claim that by snapping it on to the seat several times a much better and more permanent seat is provided. A mechanically operated device for snapping the valves in on a 6-40 model 32 Chalmers comprises a cam actuated plunger that is held over the valve stem by a support bolted to the cylinder head. The cam is crank-operated and on release permits the valve to snap back on to its seat, giving the seat the required finish.—L. J. Robinson Co., Detroit.

(No. 1238) AN OIL SPLASH PLATE

It is difficult to adjust the valves on a 6-40 Model 32 Chalmers with the engine running because of flying oil caused by the rotating parts. By cutting out the middle section of a cylinder head cover case and placing it over the timing gears, a splash plate is provided that permits the valves to be adjusted without difficulty with the engine running. This plate also removes the possibility of the repairman getting his fingers into the timing gears.—L. J. Robinson Co., Detroit.

(No. 1239) A MECHANICAL DOOR LATCH

It is often desirable to keep intruders from the repair shop, yet the employees should not be prevented from coming and going at will. By fitting the shop door with a Yale or similar snap lock and connecting the knob with the store-room, by spark plug levers and controls, the door may be readily opened to admit the proper persons.—L. J. Robinson Co., Detroit.

(No. 1240) AUXILIARY AND PORTABLE JACK

The base is an old packing box carrying two wooden supports for the axle housing, and is mounted on casters. One side of the box is cut away to provide jack in use the car may be moved a space for tools or parts. With this jack in use the car may be moved around even though the wheels have

been removed, and it is stable enough to render tipping over impossible.—L. J. Robinson Co., Detroit.

(No. 1241) SERVICE CAR VISE

The method of carrying a vise on a service car is somewhat of a problem, as the vise is usually in the way when not in use. By making a trap door in the floor, and mounting the vise on the underside, it may be swung into position when needed. The floor and the step offer a convenient bench for the tools.—Thomas J. Doyle, Dodge Bros., Detroit, Mich.

(No. 1242) BATTERY CHARGING

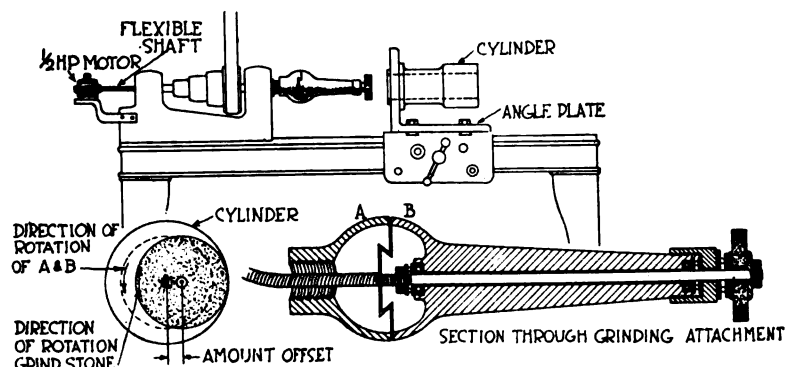
An ordinary 6-volt shunt wound lighting generator may be used to charge a 12-volt battery without danger of burning up the generator, by removing one end of the shunt field winding, and attaching it to the central connection of the battery. This causes an impressed voltage of 6 volts to be applied to the shunt field, as formerly, and holds the field current down to normal. The generator is speeded up to generate the required 12 volts, and the armature is connected to the battery terminals in the usual manner. While this use of a lighting generator is not particularly efficient, or commercially satisfactory, it may be used in the small shop on occasional jobs.—Gordon Reim, U. S. L. Service Station, Detroit, Mich.

(No. 1243) PORTABLE LAMPS

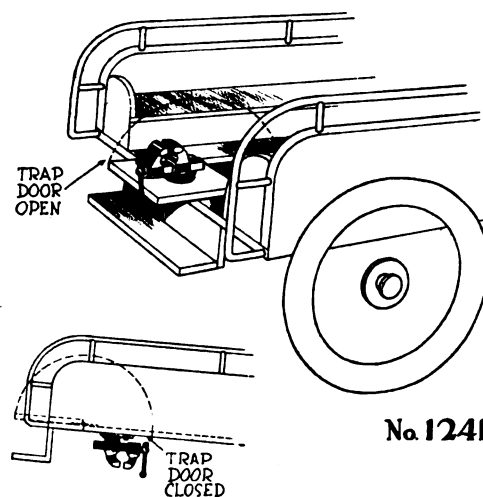
These lamps are of the common wash-rack type, but may be carried directly to the job, and are suitable for night repair shop work. The lamp comprises a series of electric lights, mounted on a board and hung on pipe standards that are in turn held in a heavy cast iron base. An extension cord permits the lights to be lighted from any lamp socket.—W. T. Murray, Chevrolet Service, Flint, Mich.

(No. 1244) SERVICE CAR BENCH

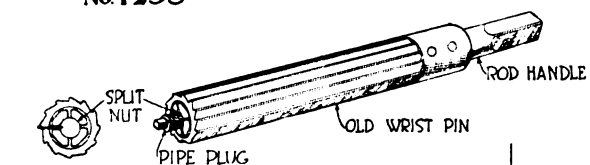
Roadside service often requires the use of a portable bench. A bench that may be easily carried in a service car and erected on a job comprises a wooden plank carrying a vise and supported on two rests made of $1\frac{1}{4}$ -in. pipe. These rests are each A-shaped, the plank being wedged between the two top cross bars.—W. B. Rood, Detroit, Mich.



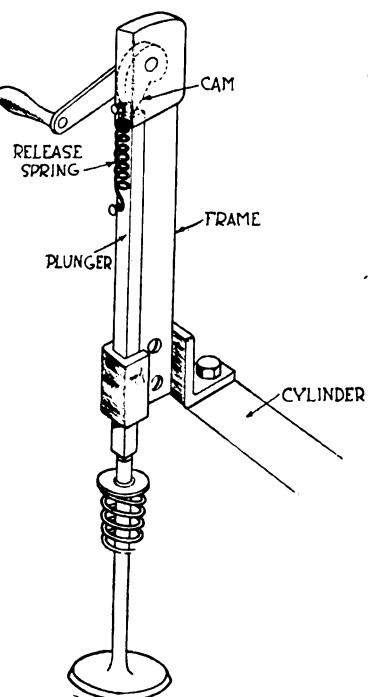
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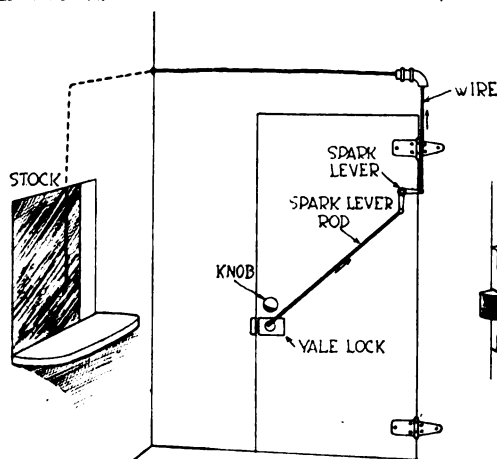
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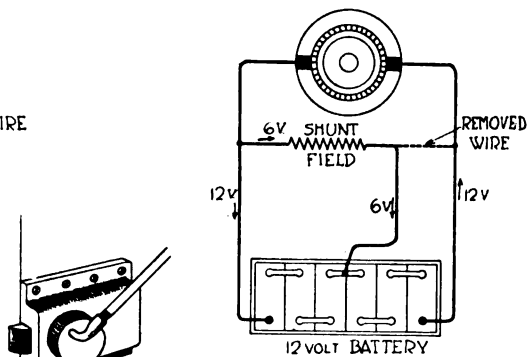
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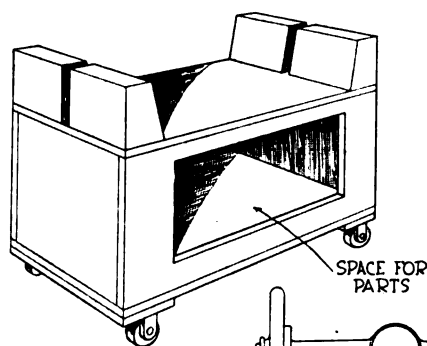
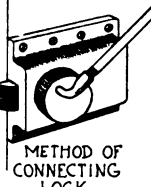
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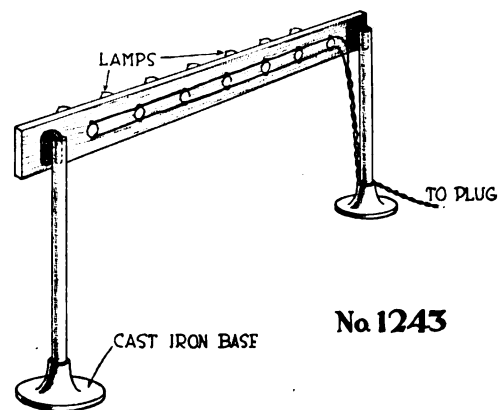
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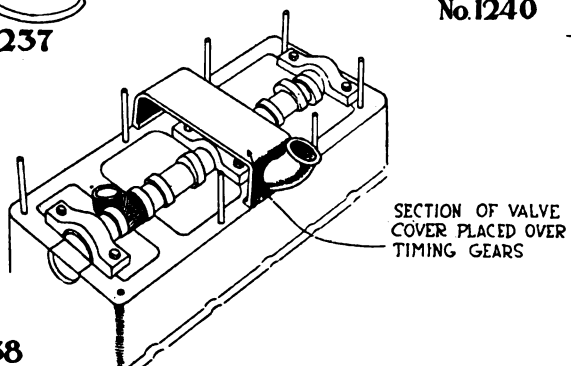
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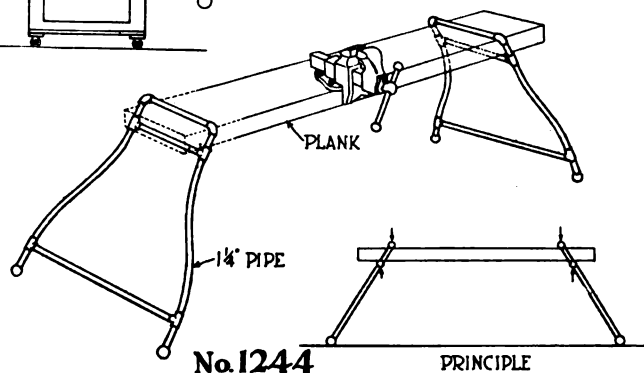
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PRINCIPLE

A Department of

BETTER MECHANICS

No. 28

Parts Straightening for the Repairshop

By S. T. Williams

PARTS straightening is a specialized branch of the repairshop. In most instances it has been undeveloped. The common practice is to replace all bent parts with new ones, except in the simplest cases. This is unnecessary, tedious and expensive. Most bent parts on the car, unless actually broken, can be reclaimed. Many broken parts can be reclaimed through the use of the welding torch.

TOOLS REQUIRED

In addition to the tools common to all repairshops, the following tools and equipment are necessary:

1—An oxy-acetylene welding outfit. This is used as a source of heat in nearly all of the straightening work. It permits a direct application of intense heat to be concentrated upon the part to be straightened.

2—Forge. Used in heating large and heavy parts that require much heat, or heat over a large area. In such cases the welding flame is too small and expensive.

3—Anvil and hammers.

4—Heavy vise.

5—Blocks. These should be wood, of various sizes, and are used as frame supports, jack bases, etc. A large assortment should be on hand.

6—Extra heavy jack or truck jack. This jack resembles an ordinary car jack, but is about twice as large. It is used to force bent members back to shape after heating.

7—Eighteen-inch monkey wrench. Used as an adjustable bending bar.

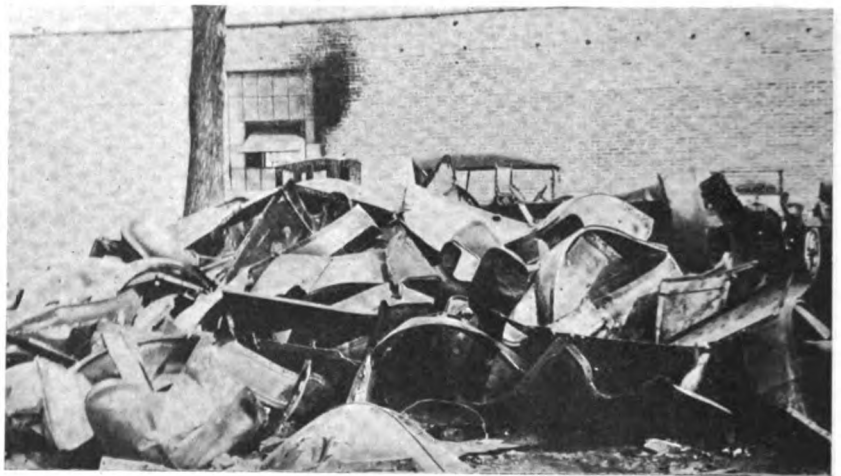
8—Complete set of straight edges. One 6 ft., one 3 ft. and one 2 ft. These are used to determine when a bent part has been brought back to line.

9—Squares. Used in conjunction with the straight edges to gage the work.

SPECIAL EQUIPMENT

The following equipment is not usually found in the repairshop, though it is common in the blacksmith shop. It is, however, essential to good straightening practice.

1—Straightening table, Fig. 1—An



A large percentage of the damaged fenders shown might have been saved by applying the methods described here

extra heavy table, having a cast iron top and mounted on pipe legs. This table is heavy, strong enough to permit parts to be placed upon it, and pounded out straight—the flat top serving as a gage to show when the part is straight.

2—Straightening bars, Fig. 2—These are in reality extra heavy, large solid wrenches, used to obtain a purchase upon the bent part, and to force it back to place. Several should be made up,

as circumstances demand their employment.

3—Forming chisel, Fig. 3—A square nosed flat end chisel, used to get into corners and force them back to shape.

4—Finishing tool, Fig. 4—Used in smoothing up the surfaces after they are bent back to shape. It is a common blacksmith's tool.

5—Rivet set and dolly, Fig. 5—Hardened steel punches, with round counter-sunk noses, used in forming the heads on rivets.

6—V-block, Fig. 6—A steel block that is so shaped that it may be used as a support for many jobs.

7—Dolly bar, Fig. 7—A U-shaped bar of steel that is used as a support for rivets, when removing or replacing them. It is also used as a support for frame sections, when pounding them back to shape.

Principles of Straightening

The principles of straightening are few—and simple. They are:

1—Find the point of bend.

2—Except in the case of small bends free each bent member, and straighten it separately from the rest. Otherwise, when one is being straightened another is being bent.

3—Apply the heat only to the point of

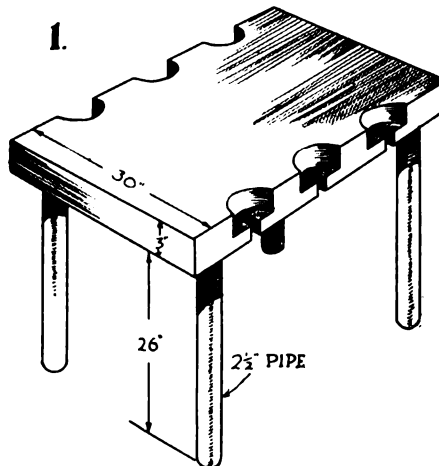
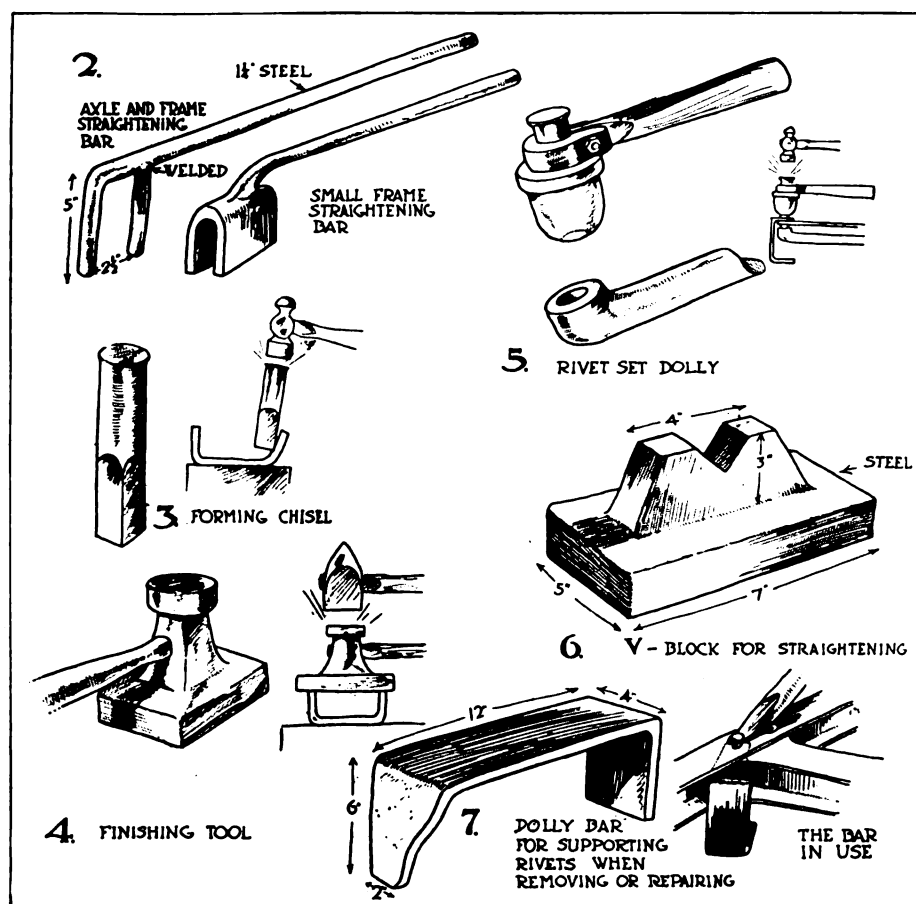


Fig. 1—Straightening table, rigid and heavy, able to stand up under the blows of a sledge hammer



Figs. 2 to 7—Special tools for straightening parts. Fig. 3 shows a chisel for straightening up edges and corners. Fig. 7 is a dolly bar used in removing and replacing rivets

bend—and only to that part of the member that must be “pulled” to bring the part straight. This is explained in detail later.

STRAIGHTENING CHANNEL AND ANGLE SECTIONS

Practically all the members used in frame construction are either channel or angle sections, and the method of straightening one is applicable to both. Channel or angle sections can be bent in three ways—by having one cheek and part of the face buckled, as in Fig. 9, by having a buckled face, Fig. 10, or by having one or both cheeks buckled, as in Fig. 11.

The point of bend can usually be clearly seen. Minor bends, however, must be found by the use of a straight edge, or by measurement from some part known to be straight. Most bends are concentrated at a point having a hole through the section. It is essential that the point of bend be found, and the heat applied only to that point.

It is in this application of heat that the greatest attention must be paid. The heat must be applied only to that part of the bend that must be “pulled” to straighten the part and the part heated to a dull red heat. The method of application of heat is clearly shown, for each type of bend, in Figs. 9, 10 and 11.

In Fig. 9 is shown a channel section having one cheek, and part of the face buckled. The heat from the welding torch is applied only to that part of the

cheek and of the face that is buckled—not to the entire section. In this case, if the lower cheek were heated, it would bend, instead of acting as a brace, to permit the buckled parts to be pulled back to place.

Fig. 10 shows a channel section having a buckled face. In this case the face and the part of the cheeks that are buckled should be heated with the welding torch. The edges of the cheeks, however, should be left cold, to act as a brace, in pulling the bent face back to place.

The third type of bend—both cheeks of the channel buckled—is shown in Fig. 11. No heat should be applied to the face of the channel, but both cheeks should be heated, as indicated by the shaded portion.

It is not always possible to apply the

straightening force to the frame with a bending bar. Often the heavy jack may be used, and occasionally a chain block is necessary. On smaller sections a large monkey wrench makes an excellent bending bar. In other cases a hammer or sledge must be used to drive the part back to place. The method of applying the straightening force is not the important point—it is the application of heat to the point of bend on the part of the section that must be pulled to bring it straight.

After the sections have been made as straight as is possible, with the bending bars and heat, a monkey wrench may be used to remove the small crimps (see Fig. 13). The crimps should, of course, first be heated. The final smoothing up may be done either with the finishing tool or the forming chisel.

STRAIGHTENING THE CAR FRAME

As stated, the methods of straightening channel sections may be used on practically all parts of the car frame. However, there is a sequence of operations that is most expedient.

A common type of bent frame, Fig. 8, is one caused by a front end collision. It usually includes bent horns, buckled front cross member, bent sub-frame members and a sprung middle cross member. Looking at the bent frame as a whole, it would seem impossible to straighten it—and it would be, were not the parts straightened one by one.

The first step is to remove the engine, the front wheels, and fenders. If the axle is bent, that, too, should be removed. The spring ends should be removed from their hangers on the frame. The car should be supported on blocks, placed about half way between the front and rear cross members, leaving the entire front end of the frame accessible. Removal of the body may later be found necessary to get at the bent parts.

With the exception of the front horns, the bent parts should be straightened separately. These may be heated, as shown in Figs. 9, 10 or 11, and forced back to place either with a bending bar or jack.

The front cross member rivets are then cut off, and the cross member removed. This leaves the two side members and the sub frame members free, so that each can be straightened independently of the other.

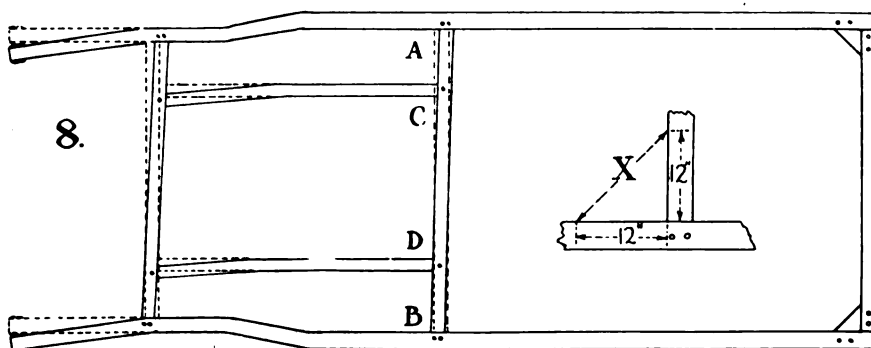


Fig. 8—Bent frame due to collision. Insert—Method for finding a spring cross member

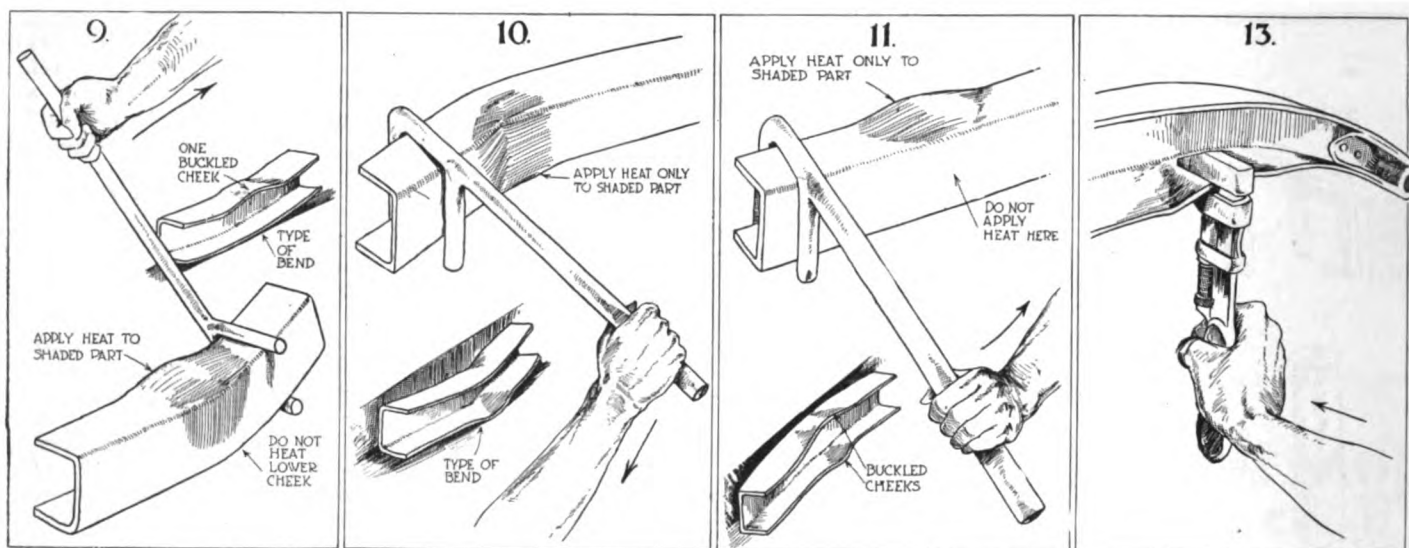


Fig. 9—When one cheek and part of the face is buckled, only the bent parts should be heated. Fig. 10—When the face is buckled very little heat should be applied to the cheeks. Fig. 11—When both cheeks are buckled heat should not be applied to the face but to the shaded portion. Fig. 13—Small crimps may be taken out with heat and a monkey wrench

As the front cross member is usually a somewhat complex shaped part, it would seem difficult to tell when it was formed back to the original shape. But this is not the case. Any pressed steel part, when restored from a bent to the formed shape, is smooth. All curved surfaces join evenly—when the piece “looks right” it usually is right. Pressed steel shapes bend readily until they reach their original shape—and then they bend with difficulty, if the heat be applied as directed.

The cross member should be straightened on the straightening table—heating each point of bend and straightening one part at a time; then finishing it with a forming chisel.

Now the engine base or sub frame members may be heated and straightened in the same manner, using the straight edges as a gage. If the middle cross member is found to be bent, or sprung, it, too, should be straightened.

A sprung middle or rear cross member may be found by the method shown in the insert in Fig. 8. First, 12 in. is marked off, both on the cross member and the frame. The distance (X) is measured, first on one side and then on the other. It should be the same on both sides—making the angle (A) equal to the angle (B) of Fig. 8. Likewise, the angles (B) and (C) should be equal.

When the middle cross member is sprung, it is necessary to remove it, straighten it and again rivet it in place—after lining the frame up. It is usually not advisable to attempt to spring the frame back to shape without cutting out at least two of the cross members. To do so would loosen the rivets.

When the rear part of the frame has been lined up the middle cross member and sub base may be replaced, making the angles equal, as described. The sub frame may then be used as a guide in straightening the front part of the side members.

Using the methods outlined in Figs. 9, 10 and 11, the two side members may

be straightened and brought back to line. Then the front cross member is riveted in place and the sub frame riveted to it. This completes the frame repairs.

All rivets should be cut off cold (Fig. 7), and replaced hot. Any attempt to heat the rivets and cut them off hot would tend to enlarge the holes in the frame. By placing them in hot, they may be readily headed by means of the set, and when cool will contract and hold tightly.

STRAIGHTENING FRONT AXLES

Practically all front axles have but three requirements to determine when they are straight. The first is that the spindles are in the same plane—that is, when arbors are placed in the spindle, these arbors will line up when sighting lengthwise of the axle. An end view of an axle with twisted spindles will look like a figure X. (See Fig. 12.)

The second requirement is that the spring perches be in the same plane. This may be determined with a straight edge. By the third requirement, the spindles must be parallel, and so that a square, placed on a straight edge, resting on the spring perches, will line up with the arbors placed in the spindle holes. (See Fig. 12.)

In straightening axles the steps are, then, first to remove the twist; second, to line up the perches, and third, to make the spindles parallel.

By catching the axle in a vise, heating it with the welding flame at the point of bend, the axle may be easily twisted back to shape with the bending bar. But it is important that the heat be applied only to the point that it is desired to bend the axle, and that the steps follow in the sequence given above, after the most visible bends have been removed.

STRAIGHTENING REAR AXLES

Rear axles usually bend just inside the outside wheel bearing, as that is where the effect of a blow on the hub is concentrated. Hence in most cases straightening is not difficult.

The live axle is first removed and straightened if bent. This is most readily done in a lathe, and it is not usually necessary to apply heat to the axle. When straightened it is replaced in the housing and used as a gage in straightening the housing.

The axle is completely assembled, except that the flange nuts are removed, and the bolts driven out of the way. Then, if the housing be bent, the flange

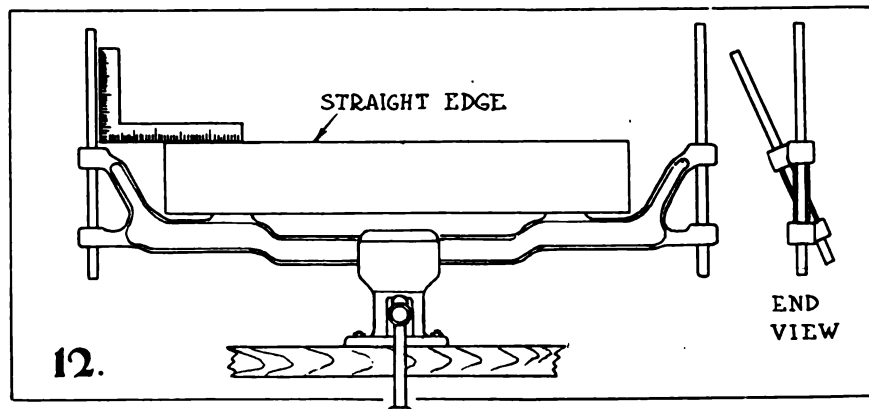


Fig. 12—The straight edge is used as a gage, to determine when the spring perches are on the same level and plane. Then arbors are inserted in the spindle holes, and the axle twisted until the two come into line. A square, placed on the straight edge, is used as a gage, to show when the spindle holes are parallel

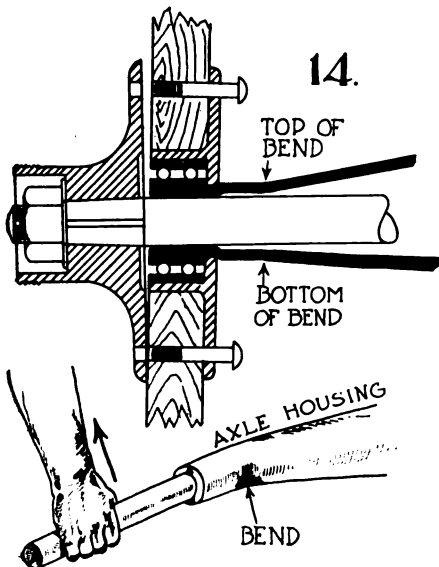


Fig. 14—The line of bend in rear axle housings may be determined by removing the hub flange bolts, and noting the point of greatest opening between the flange and the spoke centers. The live axle must first be straightened

will spring away from the spokes on the side of the housing that is bent. See Fig. 14. The size of the opening will be an indication of the amount of bend. Mark the top of the bend.

As stated, most bends occur just at the inside edge of the wheel bearings. A pipe, just the size of the inside of the housing, can only be inserted to the point of bend. Hence the two essential points are determined—the point of bend and the top of bend.

The straightening comprises inserting the pipe to the point of bend, heating the housing with the welding flame at the bottom of the bend, and pulling the housing back straight. The basic rule of straightening applies here as elsewhere—only heat that part of the bent portion that you have to PULL to make the part straight.

The flange and live axle may then be replaced and used as a gage to check up the accuracy of the work. When both live axle and housing are straight, the flange will lie flat on the spoke centers.

Bends in the housing, not just inside the wheel bearing, require that the axle be removed from the car, torn down and straightened in the lathe. The method of straightening is the same as above.

As heat must be applied to all parts before straightening, any paint present would have been burned off. Though the most workmanlike method would be to have the parts finished in a paint shop, few owners are willing to wait that length of time. Some sort of a quick drying paint, that will protect the metal, prevent rust and better appearance, is essential.

For this purpose quick drying black japan is satisfactory. After cleaning the parts it is applied with a brush and dries in about 15 minutes. As most of the straightened parts are on the running gear, the fact that the colors may not match is not noticeable after a few miles run.

Previous Articles

Subject	No.	Date of Issue
Overland—Main and connecting rod bearings	1	Dec. 13
Cadillac—Cam and fan-shaft driving chains	2	Dec. 20
Maxwell—Rear axle repairs	3	Dec. 27
Chevrolet—Clutch repairs	4	Jan. 3
Borg & Beck—Clutch adjustments	5	Jan. 10
Hudson—Oil pump adjustments	6	Jan. 17
Reo—Clutch adjustment	7	Jan. 24
Buick—Rear axle adjustment	8	Jan. 31
Chalmers—Valve and ignition timing	9	Feb. 7
Dodge—Brake adjustment—Push-rod care	10	Feb. 14
Studebaker—Torque arm repair—Push-rod care	11	Feb. 21
Cole—Adjustments of motor	12	Feb. 28
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All Cars—Removing compression knock	14	Mar. 14
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Cadillac—Rebuilding the radiator	16	Mar. 28
Ford—Magnet replacement on magneto	17	Apr. 4
Saxon—Clutch repairs and adjustments	18	Apr. 11
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Ford—Overhauling axle in 1 hour	21	May 2
Hupmobile—Gearbox removal and replacement	22	May 9
Cleaning metal parts	23	May 16
Simplified directions for welding	24	May 23
Mudguard, body and lamp straightening	25	May 30
Carbon removal by oxygen process	26	June 6
Ball, Taper and Roller Bearings—Care, repair and adjustment	27	June 13
Studebaker—Camshaft removal	27	June 20

Books

The Motor Car Paintshop Handbook: compiled and distributed by the Service Department of Valentine & Co., paint manufacturers, 456 Fourth Avenue, New York. The book is more than a mere advertisement for the Valentine products. It tells how to start a paintshop, how to run it at a profit and how to do the work in the best way. The man who reads the 69 pages in the book will, unless he is a most remarkable paint man, know more about the painting business than he ever knew before.

NOTES FROM THE FACTORIES

NEW YORK, June 23—The Standard Woven Fabric Co., Walpole, Mass., has opened an office at 1834 Broadway in charge of Tom Howard.

ENID, OKLA., June 23—The Geronimo Motor Co. will build a factory 65 by 300 ft., with a 40 by 65-ft. wing.

QUINCY, ILL., June 23—The Niswander Mfg. Co. has been incorporated to manufacture demountable automobile rim removers, rim tools and parts of automobiles.

TULSA, OKLA., June 23—The Universal Motor Co. will build a four-story assembling plant, 140 by 150 ft.

CLEVELAND, June 23—The Peerless Motor Car Co. has completed extensions to be used for the manufacture of passenger cars, and has commenced the erection of a warehouse, 48 x 400 ft. The

motor truck department of the company is employed to about its full capacity on trucks for England at the rate of fifteen a day.

CLEVELAND, June 23—The Templar Motors Corp. has commenced the erection of a one-story building, which will be the first unit of its plant. Manufacturing will commence in about 30 days.

CLEVELAND, June 23—The Winton Engine Co. has commenced the erection of a one-story brick addition, 99 x 358 ft.

Horey and Klein Divide Honors

OKLAHOMA CITY, June 17—In the presence of a fairly large crowd at the Fair Grounds here yesterday the first day's events of the mid-summer automobile races were held. The feature race was the 10-mile free-for-all, for which \$300 was offered to the three winners. Fred Horey, driving a Briscoe, finished first, his time being 13-11 4-5. Less than a car length behind was Sig Hugdahl, driving a Maxwell, and Art Klein, driving a Briscoe, finished third. In to-day's races, Art Klein in a Briscoe won the stellar honors by outdistancing such racers as Craft, Hugdahl and Horey, in the 25-mile free-for-all race for a purse of \$500. He drove the distance in 33:16 2-5.

Westinghouse Closes Chicago Branch

CHICAGO, June 22—The Chicago branch of the Automobile Equipment Department of the Westinghouse Electric & Mfg. Co. has been discontinued with the resignation of H. W. Hanks, former Chicago representative. This district will now be combined with and handled from Indianapolis by H. S. Johnson, with the title of western district representative. Hanks has taken up standardization work with the Society of Automotive Engineers.

Higrade Company's Officers

GRAND RAPIDS, June 25—The Higrade Motors Co. has completed its official personnel as follows: President, J. Elmer Pratt, formerly Pierce-Arrow sales manager; vice-president, L. W. Coppock, in charge of engineering; secretary, Will J. Loomis; treasurer, Raymond J. Starr.

Ryus Goes to France

LOS ANGELES, June 23—The war has necessitated changes in the personnel of the Oldsmobile Co. of California. Major H. D. Ryus, general manager, is now in France with General Pershing. E. A. McGinnis has been sent from here to be sales manager at San Francisco, and Robert Weaver has been appointed local sales manager. Owen Bird, one of the most active members of the Automobile Reserve Corps, has been commissioned a captain in the quartermaster department and ordered to join the motor truck squadron at Fort Sam Houston, Texas.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

It's Legal, But—

A dealer asked me the other day, how far he could go in describing the cars sold by him without the danger of being held to have warranted or guaranteed them.

People who sell things have certain privileges in discussing articles sold by them. The courts recognize the fact that there is a certain line of dealers' "talk" or "puffing" that is indulged in by all people selling goods.

Thus a man may say that the cheese he is selling is excellent, while if the buyer would only use his nose he would soon discover it was otherwise.

So, too, if a seller says that his car is the "best buy in the city" this statement will not be held against him if by merely shopping around a little bit the buyer could find out that there were much better values.

The expressions, "extra fine car," "very fine motor," and "very good condition" have likewise been held to be merely dealers' "talk" and not warranties. It is possible that a man selling a thing may really think it is a good article while other people might not think so. For this reason "dealers' talk" is not taken very seriously by the courts.

Don't Keep It So Long

It has just been decided in Texas, that when a buyer of a tractor keeps it for nearly 3 years after finding that it is unsatisfactory, and knowing that the seller will make no further repairs, he is bound by the contract and must pay the price that he agreed to pay for it, as by his long delay he has lost his right to rescind the contract.—Van Croft vs. Emerson, 194 Southwestern, 991.

What Breaks Breaks

The Supreme Court of Massachusetts has just decided that when a dealer makes a contract to sell an automobile containing a clause that it will replace parts which break under normal service within a year because of defective material and workmanship, the dealer is just as liable if the part breaks because of defects in another part as if the broken part had been defective. The contract provided:

"Vendor covenants and guarantees to repair and replace at its garage in the city of

Boston, or at its factory in the city of Providence, R. I., free of charge any parts of said chassis (tires excepted) which may break under the normal service of purchaser, within one year after delivery thereof, because of defective material or workmanship, or at vendor's option to deliver to purchaser, at vendor's garage, in the city of Boston, free of charge, new parts to replace any parts that may so break."

It was therefore held that as the crankcase was defective at the time the car was sold, causing the oil to leak and the bearings to burn, the dealer was responsible and would have to replace both crankcase and bearings as the ordinary meaning of the word "break" indicates a weakness impairment or destruction of parts, however caused.—American vs. National, 115 Northeastern, 404.

Those Traffic Laws Again

Editor Motor World: Will you kindly tell me if there is a law on the statute books regulating the direction of a vehicle standing at or near a curb, when said vehicle is not within the limits of an incorporated village or city? If there is such a law, will you kindly give me the year, chapter and section of said law?

In other words, I desire to know if there is any state traffic law in the state of New York which applies to unincorporated villages, and if there is any state officer, either paid or volunteer, who has the right or authority to arrest, with or without a warrant, a person who does not conform to the facings which obtain in the commonly accepted rules for the regulation of traffic, such as exist in the city of New York, when such person's vehicle is in an unincorporated village?—Leigh Robartes, Port Jefferson, L. I.

Answer—Under the general highway traffic law (Laws of 1917, Chapter 655) it is provided that:

"No vehicle shall stop with its left side to the curb, except in such streets as may be designated as one-way traffic streets, and where are excavations or other legalized obstructions, to prevent the operation of this regulation."

Under this new law which took effect May 25, 1917, a "street" is held to include that part of the public highway or bridge tendered for vehicles, and "curb" is held to include the boundaries of the street whether marked by curbstones or not. This seems to cover your question, as to whether there is such a law.

It is provided "It shall be the duty of the members of the Police Department of every city, town or village to enforce the provisions of this chapter strictly and partially."

The penalty for a violation is that upon conviction, the offender may be punished by a fine not exceeding \$10 for the first offense and not less than \$10 or more than \$25 for the second offense, or by imprisonment for not less than two or more than fifteen days. The third or any subsequent offense within one year, is a misdemeanor, and upon conviction the punishment may be a fine not exceeding \$100 or imprisonment not exceeding six months or both such fine and imprisonment.

The general highway traffic law contains a provision that a copy shall be mailed by the Secretary of State to each person to whom a chauffeur's license or a motor vehicle license is issued.

Is He Exempt?

Editor Motor World: I would like to have your opinion and a little advice regarding the exemptions on the selective conscription held recently.

I am proprietor of The Auto Co. and within the conscriptive age. Should I be drafted for war service the business I am now conducting would practically have to be closed. The business amounts to practically \$75,000 a year, of which about \$10,000 is credit which, should I be called away, would be practically the loss incurred. Besides this I have a large investment here in new cars, accessories and shop equipment.

I will appreciate it very much if you will give this your immediate attention, also keeping it confidential. I have been a subscriber to Motor World for quite a time, and thought perhaps your opinion in this matter would advise me to some extent.—Subscriber.

Answer—Whether or not you will be exempt for the reason stated in your letter is something that only the Exemption Board can decide. If anyone else attempted to advise you on this matter, they would be only guessing, so I am afraid you will have to wait and see. Meanwhile it might be well to try to arrange things just as if you were sure you were going to be drafted.

Colonial Style for Show Building

Better Display of Cars Ob- tained by Use of Bay Window

THE Wildhack Co., Indianapolis Oldsmobile distributor, has a very attractive two-story brick building of Dutch Colonial design, 37½ x 120 ft.

On each side of the front window is a typical Colonial entrance embodying a projecting roof supported by fluted columns. The entrance doors are of a large, heavy design, with square glass and heavy hardware.

The face of the building has been set back from the property line 5 ft. and the show window projects out this amount to the property line, making a bay window enclosed with glass, in which a car can be placed and seen from three sides.

The salesroom is large and roomy and will accommodate seven cars.

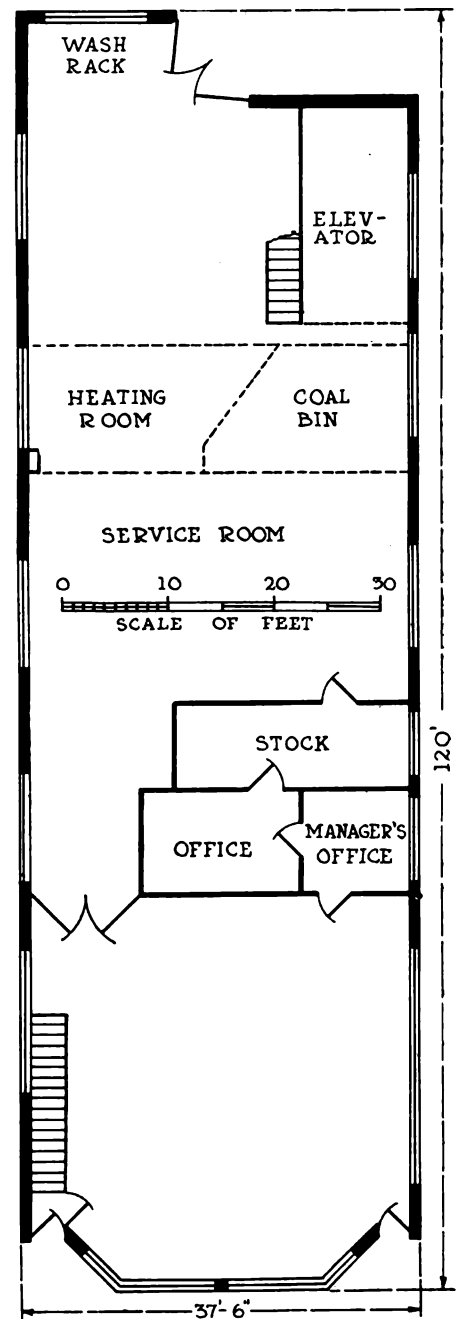
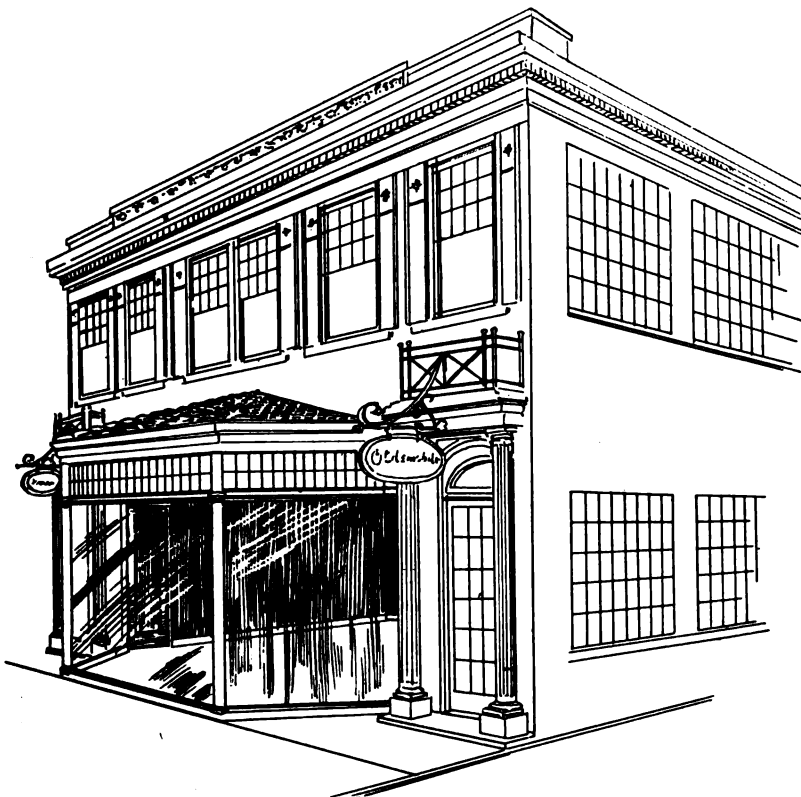
The interior decorations of the salesroom will be ivory white with white walls and ceiling. The offices, parts department and service department will be on the convenient lower floor. The salesroom floor will be 1 x 2 Flemish tile, laid herring-bone. This style of tile flooring does not show the dirt.



Showroom of Miles B. Mank Motor Car Co., showing offices at the rear and accessory store through the windows at the extreme left

Plan of Wildhack Company's showroom and service station

Attractive and unique front of Wildhack Company's new building. It is a faithful reproduction of colonial architecture, green shutters and all



New Company to Take Over Drexel Affairs

It Is Planned to Continue Manufacture with a Ferro Eight Motor —Price May Be \$1295

CHICAGO, June 26—Affairs of the Drexel Motor Car Corp., implicated by the failure of two South-Side Chicago banks and which seemed about to be smoothed out, reached a state of chaos in a stockholders' meeting held last Sunday, with the result that a new company is to be formed to take over the Drexel. It will have an entirely new official personnel and will bring out a new car equipped with an eight-cylinder Ferro engine instead of the sixteen-valve engine formerly used. The new car will sell at a price around \$1,295.

Two weeks ago Judge Carpenter, in the Federal court, appointed a receiver for the Drexel Motor Car Corp. at the request of certain stockholders. In the meeting held last Sunday a new managing committee was appointed which will organize a new company, to be incorporated under the laws of Illinois for \$300,000, all of this stock to be absorbed by the present Drexel stockholders. This company will buy the assets of the old Drexel company and continue operations.

By forming a new corporation, a large amount of stock which it is said brought little, if any, revenue to the old company will be eliminated. There will be no stock which does not represent actual physical assets of the new concern.

Tests have been made with the Drexel car equipped with an eight-cylinder Ferro engine for several weeks, and the new company will go ahead with the Drexel production, using the Ferro engine, according to members of the committee now organizing the new company. A. J. Farmer, former president of the company, and officials of two defunct banks who held large blocks of stock in the Drexel Motor Car Corp., will have no connection with the new concern. Plans are under way for utilizing at least part of the factory for the manufacture of munitions.

According to the committee's report last Sunday, \$350,000 was received from the sale of stock in the Drexel company, \$213,045 in material and debts of \$106,070, leaving an equity of \$106,974 for the holders of \$1,300,000 par value of stock.

Hold Motor Fashion Show

NEW YORK, June 25—A novel way of exhibiting cars to the public was successfully brought about by the local dealers through the medium of an Automobile Fashion Show at the Sheephead Bay Speedway as a benefit for the Actors' Fund. The event was held Saturday. A number of the popular film actresses occupied the cars while other participants came in their own cars. After parading before the grandstand, Liberty Bonds as prizes were given to those receiving the most applause from

the audience. A number of the cars had special bodies.

Approves Certain Lenses

HARTFORD, Conn., June 25—The state department of motor vehicles has completed tests of lenses submitted by manufacturers and has passed upon and issued a list of approved appliances. In issuing this list of devices and appliances the department has indicated in each instance the candle power used in test.

General Motors Gives \$250,000

FLINT, MICH., June 22—The General Motors Co. yesterday voted \$10 to the Red Cross fund for every employee. The Buick and Weston-Mott companies here will subscribe \$125,000. The Cadillac and Northway companies of Detroit will subscribe \$75,000; the Oakland and General Motors Truck companies of Pontiac, \$25,000; the Olds company of Lansing, \$15,000, and the Jackson-Church-Wilcox company of Saginaw, \$10,000, a total of \$250,000.

Wagner-Hoyt Meets Failure

NEW YORK, June 25—The Wagner-Hoyt Electric Co., organized in June, 1916, has gone into bankruptcy. All of its merchandise, fixtures and machinery will be sold at public auction at the factory and salesroom, 1902 Broadway, July 2. The sale will be held under the supervision of the Supreme Court of New York.

The company was organized to manufacture complete electrical equipment for automobiles and market it as a unit. A. F. Wagner, formerly president of the Wagner Specialties Co., and Frank Hoyt, formerly chief engineer of the Simms Magneto Co., together with Gerald Laugh, formerly connected with the Burroughs Adding Machine Companies, were the incorporators. Wagner was president and general manager, Hoyt treasurer and chief engineer, and Laugh secretary.

The concern obtained a license under the patents of the late H. Ward Leonard covering the control of electric lighting systems on automobiles, and in addition to producing the complete electrical equipment of a car, including starting and lighting, ignition and lamps, also marketed a new type of storage battery.

Sanford Truck Reorganized

SYRACUSE, June 23—The Sanford Motor Truck Co. has been reorganized and active control placed in the hands of E. A. Kingsbury, E. A. Dauer and J. E. Gramlich, all previously connected with the Chase Motor Truck Co. The company will market an entirely new line of trucks including 1- and 2-ton internal gear drive and 2½-, 3½- and 5-ton worm-drive models. The personnel of the new Sanford company follows: President, J. F. Durston; vice-president, C. Hamilton Sanford; secretary-treasurer, F. F. Sanford; general manager, E. A. Kingsbury; general sales manager, E. A. Dauer; chief engineer and designer, J. E. Gramlich; assistant engineer, W. F. Hinnelsbach.

Ford Dealer Sues Ford for Not Shipping Cars

Chicago Dealer Asks \$50,000 and Charges That Favoritism Was Shown by Manufacturer

CHICAGO, June 26—The American Motor Car Co., which was formed this year to distribute Ford cars, filed suit in the United States District Court of the Northern District of Illinois for \$50,000 damages against the Ford Motor Co., of Detroit, yesterday. It sets forth in its bill that it expended large sums of money to equip a sales office in Chicago to handle Ford cars and alleges that the Ford company "arbitrarily and without reasonable cause" refused to deliver cars in pursuance of the contract. The attorney for the plaintiff charges favoritism on the part of the Ford company and declares he personally knows certain dealers are given preference where Ford has not been able to deliver as fast as dealers have taken orders.

Buick Dealers Convene

FLINT, MICH., June 26—Managers and distributors of 36 branches of the Buick Motor Co. in all parts of the United States, representing over 4000 Buick dealers, opened their annual meeting here yesterday. Meetings include addresses by Walter P. Chrysler, president and general manager; H. H. Bassett, assistant general manager, and E. T. Strong, sales manager. The visitors are inspecting the new 1918 models and enjoying theater parties and dinners given by the Buick company.

To Hold Ford Accessories Show

CHICAGO, June 22—At a meeting held this week plans were laid for financing the National Exposition of Ford Accessories, a body of manufacturers that will direct shows throughout the country at which will be exhibited accessories made especially for Ford cars.

H. V. Buelow, Toledo, Ohio, has been made show manager and will have charge of all the shows, the first of which will be held in Chicago in September, and others in the principal cities on dates not yet determined.

Included in the personnel of officers and directors are men representing companies of national importance. It has been found that there are some 300 manufacturers who, it is hoped, will become members of the organization, the membership fee being \$100. This is not an annual fee but makes the membership permanent.

An office has been opened for Buelow in the New Southern Hotel, Chicago, from which details of the show will be worked out. It is proposed that a circular be published and that each member send out his pro rata of a total of 300,000 to Ford owners within a radius of 300 miles of Chicago. It is probable that this circular will carry the names of all members and the advertising of several.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

F. C. Reed of Chandler, Ariz., has been appointed manager of the Chandler branch of McArthur Brothers, Phoenix, Tucson, Douglas and Bisbee, state distributors of Jeffery, Packard and Dodge cars.

Walter H. Van Dusen, director of sales and advertising for the Detroit Motor Car Co., has resigned.

Joseph Ward, who has been branch manager of the United States Tire Co. at Indianapolis, has been appointed district manager, headquarters in the same city.

Ralph E. Trout has resigned his position as director of purchases for the Pullman Motor Car Co., York, Pa., and has accepted a similar position with the Victor Motor Co., York, Pa.

C. E. Jeffers has been appointed chief engineer of Nordyke & Marmon Co., Indianapolis.

L. L. Boyer has been appointed retail sales manager of the Studebaker branch in Atlanta.

R. T. Jolite, Jr., has been appointed supervisor of the Ajax Rubber Co., Trenton, N. J., in Ohio, West Virginia and Kentucky.

Charles Froesch, formerly chief draftsman for the Gillette Motors Co., Mishawaka, Ind., has become an inspector of United States airplanes and airplane engines in the Signal Service.

T. W. Smith has been appointed special representative for the Packard Motor Car Co. of New York. Smith was formerly a field representative for the Packard company.

H. H. Howe has been appointed sales manager of the Acason Motor Truck Co., Detroit. Howe was formerly with the Maxwell Motor Co.

Joseph E. Fields, sales manager of the Hupp Motor Car Corp., has resigned to become manager of sales, advertising and service for the Liberty Motor Car Co. and receives stock interest in the Liberty company.

O. C. Hutchinson, supervisor of branches for the Hupp Motor Car Corp., has been promoted to the sales managership, succeeding Jas. E. Fields, resigned.

William Lininger has been appointed a zone manager for the Chalmers Motor Co. He was formerly assistant sales manager of the Mitchell Motor Co. of Racine, Wis.

M. L. Perry, formerly in the purchasing department of the Chalmers Motor Co., has been made sales manager of the C. A. S. Sales Co., Detroit.

William R. McCulla, of the engineering staff of Willys-Overland Co., is returning to England to again enter army duties.

A. T. Severs, assistant manager at the Minneapolis branch of the Firestone company, has been appointed manager of the branch at Fargo, N. D., succeeding W. R. McCarthy, who goes to the Rubber Products Co., Minneapolis.

George L. Wilson, traveling for the Pence Automobile Co., Minneapolis, has been appointed manager for the Pioneer Auto Co., Duluth, which also handles the Buick.

Charles M. Hall has disposed of his interest in the Wetzel-Hall Co. of Detroit and New York. Wetzel purchased Hall's interest. Hall will continue actively with the company until September 1 and then decide upon future plans.

H. H. Howe has been appointed sales manager of the Acason Motor Truck Co., Detroit. He was formerly with the Maxwell Motor Co.

Forrest Arnold, sales manager of the Los Angeles Pacific Kissel Kar Co. branch, has been transferred in the same capacity to the San Francisco branch. S. S. Nerney and his brother Ham Nerney have been put in charge jointly at Los Angeles. Richard Dawson has been made manager of the San Diego branch.

J. H. Browning, formerly of the Chicago Buick branch, has been made manager of the Buffalo branch, succeeding John A. Coy, who has gone to Detroit. Charles L. Fletcher, also of Chicago, is sales manager.

H. Scott Johnston has become vice-president and general sales manager of the Grant Wire Wheel Co., Cleveland. Johnston was formerly general manager of the Crow-Elkhart Sales Co.

Carl Jeffries has been appointed chief engineer of the Detroit Truck Co., Detroit. Jeffries was formerly with the Lozier, Studebaker and Reo companies. Harry Peirce has been appointed purchasing agent of the company. Peirce was formerly with the Regal Motor Car Co.

E. M. Newald, formerly manager of new business in the Chicago office of the Guaranty Banking Corp., has joined the Commonwealth Finance Corp. as assistant to George McIntyre, sales manager.

May Build 10,000 War Trucks

TOLEDO, OHIO, June 22—The Willys-Overland Co. has offered to build 10,000 motor trucks for the Government at cost plus 10 per cent. The bid was opened by the war department Wednesday of this week. The approximate cost of the trucks would be \$2,500 each.

Motor Securities

	Bid	Asked
*Ajax Rubber Co.	68½	71
*J. I. Case T. M. Co. pfd.	80	84½
Chalmers Motor Co. com.	9	13
*Chandler Motor Car Co.	87	92
Chevrolet Motor Co.	100	102
Fisher Body Corp. com.	35	37
Fisher Body Corp. pfd.	87	89
Fisk Rubber Co. com.	74	76
Fisk Rubber Co. 1st pfd.	103	106
Fisk Rubber Co. 2d pfd.	92	95
Firestone Tire & Rub. Co. com.	115	120
Firestone Tire Rub. Co. pfd.	105	107
*General Motors Co. com.	118½	119
*General Motors Co. pfd.	88½	89
*B. F. Goodrich Co. com.	51½	52½
*B. F. Goodrich Co. pfd.	104½	108½
Goodyear Tire & Rub. Co. com.	180	185
Goodyear Tire & Rub. Co. pfd.	106	108
Grant Motor Car Corp.	3	6
Hupp Motor Car Corp. com.	3	4
Hupp Motor Car Corp. pfd.	72	80
International Motor Co. com.	5	5
International Motor Co. 1st pfd.	50	50
International Motor Co. 2d pfd.	30	30
*Kelly-Springfield Tire Co. com.	47½	49
*Kelly-Springfield T. Co. 1st pfd.	89	95
*Lee Rubber & Tire Corp.	18	19
*Maxwell Motor Co., Inc., com.	49	50½
*Maxwell Motor Co., Inc., 1st pfd.	66½	67½
*Maxwell Motor Co., Inc., 2d pfd.	31½	31½
Miller Rubber Co. com.	180	190
Miller Rubber Co. pfd.	102	105
Packard Motor Car Co. com.	150	150
Packard Motor Car Co. pfd.	95	98
Palge-Detroit Motor Car Co.	30	31
Peerless Truck & Motor Corp.	16	18
Portage Rubber Co. com.	140	150
Regal Motor Car Co. pfd.	22	22
Reo Motor Car Co.	27	29
*Saxon Motor Car Corp.	19	20
Springfield Body Corp. com.	52	57
Springfield Body Corp. pfd.	110	117
Standard Motor Construction Co.	11½	12½
Standard Parts Co.	70	86
*Stewart-Warner Speed. Corp.	72	72
*Studebaker Corp. com.	84½	84½
*Studebaker Corp. pfd.	98½	100
Swinehart Tire & Rubber Co.	65	70
United Motors Corp.	28½	29
*U. S. Rubber Co. com.	60½	61½
*U. S. Rubber Co. pfd.	107½	107½
*White Motor Co.	47½	48
*Willys-Overland Co. com.	35½	35½
*Willys-Overland Co. pfd.	92½	94

*At close June 23, 1917. Listed N. Y. Stock Exchange.

Used Cars Sell So Well That Show Is Not Needed

Minneapolis Abandons Plans for Exhibit—\$1000 to Red Cross—Trade Tour Is Planned

MINNEAPOLIS, June 25—Economy among automobile buyers may be regarded as the reason for a decision by the Minneapolis Automobile Trade Association not to hold a used car show. Another difficulty was getting the right place.

For some time used car sale reports have been falling off with some agencies and branches, and the explanation was that the companies had no used cars to sell. The demand was good, but the supply insufficient. Other firms reported good sales in used cars. However, the average seems to show no need for a used car show.

General economy shown in part by purchase of used cars instead of new ones by many people is given for the busy used car season. Prices have been satisfactory and the tonic a show would give is not required just now.

The association has given a check of \$1,000 for Red Cross work, in addition to individual subscriptions.

For the convention at Chicago in July to form a national dealers association the delegates chosen are: H. E. Pence, F. E. Murphy, A. L. Brice, H. P. Wood, R. C. Smith, G. A. Will.

Luncheon meetings are to be held each Wednesday at the Athletic Club.

A committee is working on a plan for a summer trade tour.

Scrap Metal Prices

NEW YORK, June 23—Following are the prices for which metal dealers have purchased scrap during the current week. These are from Iron Age:

	Cents per lb.
Copper, heavy and crucible	28.50
Copper, heavy and wire	27.50
Copper, light and bottoms	25.50
Brass, heavy	18.00
Brass, light	14.00
Heavy machine composition	24.50
No. 1 yellow rod brass turnings....	18.00
No. 1 red brass or composition turnings	17.50
Lead, heavy	10.00
Lead, tea	8.75
Zinc	7.25

Milwaukee Plans Big Fair

MILWAUKEE, June 23—Plans for the annual Wisconsin State Fair at West Allis, near Milwaukee, Sept. 9 to 15, at which the Milwaukee Automobile Dealers, Inc., will conduct its third annual fall show, are going forward with much vigor. With the nation at war, the chief mission of this year's fair is to do everything possible to back the soldiers at the front by encouraging intensified production at home. O. E. Remy, secretary and manager of the fair, has moved his office to the grounds.

Engineers Smoothing the Path of the Dealer

Society of Automotive Engineers in Session at Washington Delves Into Tractors, Batteries and Other Things

By Stanley P. McMinn

WASHINGTON, D. C., June 25—Special Telegram—Men who make motor cars, motor trucks, farm tractors, airplanes and motor boats are in Washington to-day and will be to-morrow in a concerted effort to make it easier for the dealer, the garageman and the repairman to do business and to broaden his natural business scope. The annual summer meeting of the Society of Automotive Engineers is in session, and it is fitting that it should be held here in the national capital, for merchandising and maintenance questions of national importance are being threshed out.

To-day nearly 300 of the most prominent engineers, production men, service men and merchandisers attended the meeting of the standards committee of the society and practically the whole day was given over to discussions of methods of standardizing car, truck, tractor and airplane construction. To-morrow the annual meeting of the society will be held.

One of the most important matters to-day was the proposal to standardize quite extensively with relation to farm tractors. The proposed standards are entirely fundamental in character.

"They are points," said H. L. Horning, chief engineer and general manager of the Waukesha Motor Co., "which have been bothering tractor manufacturers for years. If adopted they undoubtedly will determine the future policy of the farm tractor industry."

Standard Tractor Ratings

The Tractor Standards Division recommends, first, that the rating of tractors be standardized, that there be two ratings, one the drawbar horsepower and the other the belt horsepower. The drawbar rating would be based upon 80 per cent of the actual ability of the tractor operating on good, level footing for 2 hours continuously. The belt rating would be 80 per cent of the power which the engine is guaranteed to develop continuously for 2 hours.

In determining these ratings, the committee took into consideration the likelihood of farmers operating tractors up to the limit of their ratings; so that if this limit be set at only 80 per cent of the ability of the tractor there will be little danger of disastrous overloading.

Another matter that was carefully considered was the proneness of farmers to judge the capability of a tractor by the number of plows it will pull regardless of the speed at which they are pulled.

For this reason, it is proposed also to standardize tractor speeds at 2 1/3 miles per hour. This speed has been determined from long experimentation to be the best from the plowing point of view. Slower speed prevents proper scouring of the plows and higher speed is scarcely feasible. Furthermore, this speed is exactly suited to existing types of moldboard plows and will not require new designs.

The belt speed also is to be standardized. It has been recommended that belt speed be made to conform to the requirements of the threshing machine. It is to drive these machines that belt power is most extensively used. It has been found that a belt speed of 2600 feet per minute is best, and this speed is recommended. This can be obtained with a 42-in. pulley running at 240 r.p.m.

Simplify Tractor Couplings

Two other important tractor matters which it is recommended be standardized are the height of the drawbar from the ground and the method of attaching various farm implements to the tractor. The drawbar height recommended is 17 in. A standard type of coupling would permit the use of any make of farm implement with any tractor, thus simplifying the handling of farm implements from the dealer's point of view as well as from the maker's.

Many existing S. A. E. standards covering such things as nuts and bolts, yoke and rod ends, cotter pins, screw threads, etc., already applicable to the farm tractor, and other standards, such as those covering magneto mountings and carburetor flanges, etc., will be modified in the degree necessary to fit them to tractors. This means that the motor car or truck dealer eventually will be able to supply the demands of the farm tractor owner from the motor car stocks on his shelves.

The committee is considering the standardization of drive wheel rim punchings. This would permit the interchangeability of various types of lugs used for getting traction in different soils. Thus the scope of the tractor would be increased because it would be possible to use it for different operations with very little change, and that change easily made.

Of equal importance with these tractor standards are the proposals made by the Aeronautic Division. Here, too, there are many motor car and truck standards which can be adopted without change and this is being done. To-day the

Standards Procedure

- 1—Divisions of the Standards Committee study problems presented to them and make their recommendations to the Standards Committee.
- 2—The Standards Committee in general meeting then discusses these recommendations and either approves them or refers them back to the Division for further consideration.
- 3—They are then turned over to the Council.
- 4—If approved by the Council the recommendations are presented to the Society in general meeting.
- 5—Here they are either approved or referred back to the Standards Committee for further consideration.
- 6—If approved, a letter ballot is taken by the Society.
- 7—If approval by letter ballot, the recommended practice becomes standard.

committee took up in detail the method of control and recommends that the control be the same for all types and makes of machines. This will simplify the training of aviators in addition to overcoming many manufacturing problems and reducing the stock of spare parts which a dealer must have.

With the entry of the United States into the world war and the knowledge that the airplane undoubtedly will be the deciding factor, this work of the Aeronautic Division is of particular significance. Through the labors of this committee production difficulties will be swept away and airplane manufacturers will be assisted in obtaining the quantity production which is vital at the present time.

At the meeting of the Standards Committee in Cleveland, the Electrical Equipment Division made certain recommendations concerning the size and shape of generator and starting motor flanges and these have now been formally approved by the Standards Committee. The adoption of these standards will reduce the spare parts stock of the dealer, garageman and supply man in addition to simplifying maintenance work. Two sizes of both flanges are proposed for every type of generator and starting motor.

The Lighting Division, which is closely allied to the Electrical Equipment Division, recommends that a method of headlamp construction be adopted which will do away with all need for focusing; in other words, lamps would leave the factory properly focused, could never get out of focus and hence would never need attention of this kind. The adoption of

this standard will reduce the amount of service the dealer must now give in focusing lamps for car owners.

This division also recommends that battery manufacturers standardize the voltages of their batteries as follows: 3-cell, 6-8 V; 4-cell, 8-10 V; 6-cell, 12-16 V; and 9-cell, 18-24 V. Such action would assist the bulb manufacturers in turning out bulbs of the highest possible efficiency for the voltage. This would also tend to reduce the number of lamp sizes the dealer must stock.

Standard Starting Batteries

The Starting Battery Division, also allied to the Electrical Equipment Division, is actively engaged in a campaign to get manufacturers among other things to eliminate all loose parts about a battery—parts which can be lost in the service station or garage. These are principally the terminals. Two sizes, one for the negative post and the other for the positive post are recommended; they are different in size so the garageman cannot possibly through error or carelessness get the wires twisted.

The dimensions of the batteries themselves having been previously standardized, this committee now recommends that a standard size of battery compartment be adopted. This would be both ventilated and drained. It has not been decided just where this would be located, however.

Sixteen Sizes of Valves

Another very important matter which the Engine Division recommends is the adoption of standard sizes for all poppet valves. At present there is an immense number of sizes varying only by fractions of an inch. In consequence, except in exceptionally few cases, the valves for one engine will not fit any other engine of the same dimensions.

If the recommendations of the committee are adopted, there will be just sixteen sizes of valves for every type of engine—car, truck, tractor and motor boat. The smallest is 1-in. and from that the sizes increase in diameter by $\frac{1}{8}$ -in. increments. Furthermore, this standard valve will have a standard slot in it for the valve grinding tool, thus simplifying again the work of the garageman and repairman.

The Miscellaneous Division which has the work of standardizing a lot of small parts has extended the standards covering rod and yoke ends to include two larger sizes, namely, $\frac{5}{8}$ -in. and $\frac{3}{4}$ -in. These conform closely to present standards on smaller sizes.

The meeting to-day was held in the Bureau of Standards and during the course of the morning session was addressed by Secretary of Commerce Redfield.

The meeting to-morrow also will be held in the Bureau of Standards and it is expected that between 600 and 700 will be in attendance. The summer session will be formally brought to a close with an informal banquet at the New Willard Hotel. More than 700 members of the society have signified their intention of being present.

Engineers Behind Boys Who Go to the Trenches

Secretary Redfield Enthuses S.A.E. with Story of How America Backs Up the War

WASHINGTON, D. C., June 25—Secretary of Commerce Redfield addressed the members of the Standards Committee of the Society of Automotive Engineers in session to-day. He spoke for the Government in welcoming the society. The audience numbered 300.

Secretary Redfield expressed the wish that this meeting would be the beginning of a period of close co-operation of the engineer with the Government. He said that the Government rejoiced in the bringing together of such men as were represented in the S. A. E. meeting. He said we are living in the midst of one of the greatest spectacles in history and asserted that democracies are generally inefficient but that there is no stronger or greater force in the world than a democracy which is unanimous in its actions. He said that America is in this war by common consent and that the Government has not been able to use one-half the big men who have presented themselves to work without compensation. Secretary Redfield declared that if our foes knew how America is pulling together they would sit up and take notice.

He spoke of our purpose to dominate the air, and said that we are in this war to show that the little nation would have just as good a chance to survive as the great nation. He retold the story of the broken treaty with Belgium, which was invaded by the very nation that had signed itself as willing to protect it. He mentioned how close the war is to the people on the other side of the water, while, to us who are only beginning to get ready, it is as yet far distant.

One of the most impressive parts of his address was his statement that America is behind the boys who go over on the other side to fight. It is behind them with the technical brains as represented in the S. A. E. gathering at Washington and with all the financial resources of the country.

Working on Trucks

WASHINGTON, June 23—The Society of Automotive Engineers has just held in Washington a 3-day conference of truck, engine, transmission, axle, frame, radiator, fan and bearing manufacturers, for the purpose of co-ordinating the production of the units to be installed in the U. S. Government military trucks. The purpose is to bring about interchangeability of these truck elements so far as possible, rather than to standardize them fully. Interpretations of the War Department specification will be arrived at satisfactory to all. Several of the transmission manufacturers believe, however, that their product can be completely standardized. There was no in-

tention of recommending in the meeting changes in the Government specifications in any major respect. One of the interesting developments was a general expression of opinion that it is practicable to standardize length and widths of the military truck leaf springs. This had never been attempted or proposed seriously before. Next to tires, springs require replacement on military trucks more frequently than anything else.

Another interesting result of special study is an air cleaner to be installed at the carburetor inlet to keep dust out of the engine.

In general the truck units will be co-ordinated as far as possible without delaying prompt general production. The Government will be supplied with as many trucks of a suitable type as it can possibly need.

A subcommittee constituted of members of the S. A. E. is now at work in Washington checking up thoroughly the detail mounting dimensions proposed at the last meeting.

No More Weed List Prices

NEW YORK, June 26—There are to be no more list prices or discounts on Weed chains. Henceforth the American Chain Co., Bridgeport, Conn., will market its product at a net price, and the jobbers and dealers will fix their own resale lists. The company also will sell to jobbers only, and is now compiling a list of jobbers for use in distributing the product.

All friction in the trade as to resale figures is by this step eliminated. With no resale list prices there can be no cutting of the list and the contentions that have arisen therefrom. The company's action follows the winning of a suit against Weed by the Lowe Motor Supplies Co., of this city, which charged Weed with refusing to sell goods to Lowe.

Inasmuch as the Weed patent expires March 24, 1920, there has been speculation as to whether Weed would begin to meet the coming competition by reducing its prices. The company, however, states that little price change is probable at present because the factory is far behind orders and the trend of prices is upward. It is the opinion of the Weed company that with the net practically unchanged and dealers and jobbers being obliged to get a certain profit to exist there will generally be little change in the figures despite the new policy.

Anstead Passes Away

CONNERSVILLE, IND., June 25—E. W. Anstead, connected with the Lexington-Howard Co., the Hess Spring & Axle Co. and many other automobile companies, died last week.

Paige Prices to Advance

DETROIT, June 25—The Paige-Detroit Motor Car Co. will advance prices on its various models on July 15. Definite announcement of the various increases will be made shortly.

Harry Shepler Resigns as Overland Executive

**Leaves Big Corporation After Long
Service for Needed Rest—
Birchall His Successor**

TOLEDO, OHIO, June 22—Harry L. Shepler, vice-president in charge of production of the Willys-Overland Co., will resign July 1. Shepler's plans for the future are not yet ready for announcement. He has wanted to resign from the Willys-Overland Co. for several months, owing to his desire for a complete rest. He has been associated with the automobile industry since its inception and has been connected with the Willys-Overland Co. since 1909, first as superintendent, then as general superintendent and finally as vice-president in charge of production. He is one of the most important figures in the motor car industry. W. H. Birchall, superintendent of the Willys-Overland Co. plants, has been appointed general superintendent to succeed Shepler.

Ford Gives \$500,000 Ambulances

DETROIT, June 22—The Ford Motor Co. has given 1000 Ford ambulances valued at \$500,000 to the American Red Cross.

LaPorte Sets Up for Himself

SYRACUSE, June 25—Robert H. LaPorte, who has had a long connection with the Franklin Automobile Co. as a field representative, will set up for himself July 1 in Washington, D. C., as the Franklin Motor Car Co. He will locate at 1324 Fourteenth Street. LaPorte covered the East for the Franklin company for a number of years and then spent two years for the Scripps-Booth, returning to the Franklin people a few months ago.

Races July 4 in Colorado

DENVER, June 22—A 131-mile road race from Denver to Laramie, Wyo., for stock cars only will be a part of the Fourth of July program here. While special racing machines will be barred, entries will be open to all makes and classes of stock cars, and a big field is expected. The course is a dirt road, with gravel surfacing about half the total distance. It skirts the mountains practically all the way, and one stretch near the finish runs through a canyon in the foothills.

2400 Ford Ambulances for War

DETROIT, June 23—The contract for 2400 ambulances for the United States War Department, involving \$1,500,000, and which was reported last week in Motor World, is being rushed to completion by the Ford Motor Co. The order announced by Frank L. Klingensmith, vice-president of the company, is the first one given to Detroit makers. It is now understood that several other firms are bidding on huge government con-

tracts. Two firms are negotiating to supply the War Department with complete war planes of a powerful type. One firm is to make the motors and another large motor car body plant will turn out the metal and wood bodies. This body plant is now in a position to divert its present activities, and it is stated upon good authority can turn to airplane body manufacture on very short notice.

Oldfield Defeats DePalma

MILWAUKEE, June 24—Barney Oldfield to-day defeated DePalma in three special races of 15, 25 and 10 miles, respectively. Oldfield won the first race in 13:35½, breaking the track record. He also took the next event of 25 miles in 23:42. The last event, 10 miles, was restarted on account of engine trouble in Oldfield's car. On the second start, Oldfield took the lead and held it to the finish, his time being 9:02 4/5.

Price Making Electric System

CHICAGO, June 25—Charles W. Price, whose Overland distributing business in this section was purchased last winter by the Willys-Overland Co., is now president of the Electromatic System Co., which makes a light, power, heat and battery charging outfit.

A number of Price's former associates are with him. A. S. Johnson is vice-president and secretary, and C. H. Chamberlain is treasurer.

The electromatic system is automatic. The plant starts whenever a demand for current is made and continues to deliver current until the last demand ceases. It runs when being used and stops when not in use, and during the time of operation the governor maintains constant speed of the engine, so that the voltage remains the same regardless of load. A safety feature is the use of a Stewart vacuum tank, which enables fuel to be carried outside of the building housing the system.

Don Lee 13 Years in Trade

LOS ANGELES, June 23—On July 1 Don Lee enters his thirteenth year as Cadillac dealer in California. When he started in business in Portland a 25-ft. front storeroom was more than ample room, but now he has six branches, fifty sub-dealers and employs more than 500 persons. He has had the Cadillac agency in the entire State of California since 1910. Since Sept. 1, 1916, he has placed 1025 of these cars in the hands of owners and that the number is not 1500 is due solely to inability to get enough cars to meet the demand.

New Maxwell Dealer on Coast

DETROIT, June 23—Robert L. Alvies has been made the Maxwell distributor for northern California. The name of Alvies' company is the Western Motors Co. The company contracted with the Maxwell Motor Co. for \$2,000,000 worth of Maxwells during the next 12 months.

Milwaukee to Stage Summer Salon of Cars

**Salesroom-to-Salesroom Show to
Be Held June 28-30—Deco-
rations Patriotic**

MILWAUKEE, WIS., June 23—The Milwaukee Automobile Dealers, Inc., embracing practically every distributor and retailer of motor cars in Milwaukee, has arranged for a "summer salon" showing of cars in the garages and salesrooms of the respective members, June 28-30, to stimulate business.

The exhibition will be conducted along the lines of the successful shows of this type already held in Los Angeles and Omaha, but is based on the original idea of the M. A. D., of a "salesroom-circuit" motor show introduced three years ago during the latter part of April. This year the M. A. D. dispensed with the "spring salon," the Used Car Congress at the Auditorium April 19 to 25 taking its place.

N. E. Osmond, Chalmers distributor, has been appointed chairman of the show committee, and will be assisted by Walter H. Diener, Haynes and Grant; Herbert W. Bonnell, Mitchell; George W. Browne, Overland and Willys, and Frank J. Edwards, Kissel and Dodge.

"The Milwaukee 'summer salon' will differ from its predecessors in respect to decorations," said Chairman Osmond. "The decorative scheme will be right up to the minute and will have the atmosphere of patriotism, the color scheme to be worked out in red, white and blue. The dealers of Milwaukee agree with the President's statement to the New York Merchants and Manufacturers Exchange that 'this is not only not a time to allow any slowing up of business, but is the time when every sensible stimulation of process should be used.' The salon during the 3-day period will be open daily in each salesroom of our members from 8 a.m. to 9 p.m."

The members who will decorate and make exhibits are as follows:

Achen Motor Co., American Auto Co., Anderson Electric Car Co., George W. Browne, Buick Motor Co., Cole Motor Co., Creek Motor Sales Co., Curtis Automobile Co., Diener-Nelson Co., Emil Estberg, Edwards Motor Car Co., Ford Motor Co., Fowler Motor Sales Co., Frint Motor Car Co., Hoppe-Hatter Motor Co., Hughes Motor Co., Jones Auto Co., King Motor Co., Kissel-Kar Co., Harry F. Krueger, Lauson-Salentine Co., Motor Car Sales Co., Marion Sales Co., Mitchell Auto Co., Nash Sales Co., Olson & Pauley Motor Car Co., Osmond Motor Car Co., Overland-Wisconsin Co., Packard Motor Car Co., Rademacher & Jaeger, Regal Motor Co., R. D. Rockstead, Edgar F. Sanger Co., Sanger Auto Co., Saxton-Reynolds Co., Jesse A. Smith Auto Co., Stegeman Motor Car Co., Stephens-Adams Motor Co., Sterling Motor Truck Co., Velle Motor Car Co., John D. Wollaege Co., The Winton Co., Wisconsin-Oakland Co., White Auto Co., Wrege Motor Car Co.

Clear View Opens Chicago Office

CHICAGO, June 25—The Windshield Cleaner Device Co., manufacturing the Clear View windshield cleaner, has opened an office at 641 East Thirty-ninth Street. Distribution east of the Missouri River will be handled from Chicago. The factory is in Los Angeles.

At Last Illinois Gets Garageman's Lien Law

Five Years of Effort Terminate in Success—Halbert Spent 35 Days at Capital

CHICAGO, June 21—After several years of effort on the part of the Garage Owners' Association of Illinois, a lien law has been passed giving dealers and garagemen the right to possess, hold and sell cars in the case of unpaid bills. To protect dealers, a clause provides that chattel mortgages have priority over the lien. The bill was signed to-day and becomes effective July 1.

The passage of the bill is the result of five years' work begun originally by the Chicago Garage Owners' Association. Four years ago the bill was defeated in the house and two years ago it was killed in the house judiciary committee. This year, however, the garagemen organized more thoroughly and were successful.

President H. E. Halbert, of the Chicago Garage Owners' Association, and treasurer of the Garage Owners' Association of Illinois, made 16 trips to Springfield in the interests of the bill and spent 35 days at the capitol. Working under Halbert was a legislative committee, consisting of one member from each of the 51 Senatorial districts in the State. Earnest work and excellent co-operation came from this committee in its support of Halbert, who was also assisted by President W. W. Ingram, of the State association.

Meridian Motors Moves

NEW YORK, June 25—The Meridian Motors Co., Inc., distributor of the Anderson in New York City and the metropolitan section, is moving from its temporary showrooms at 1690 Broadway to 1800 Broadway, the former showrooms of the Premier.

San Bernardino Joins State

SAN BERNARDINO, CAL., June 19—The San Bernardino Automobile Trades Association has affiliated with the California Automobile Trades Association. The San Bernardino dealers were the first to organize a local association, and they are the first southern California city outside of Los Angeles to join the State body.

Ozburn Has New Building

MEMPHIS, June 21—The Ozburn Automobile Supply Co., jobber, has moved into a new building, which is one of the most up-to-date automobile establishments in the South.

Springfield Creditors Meet

DETROIT, June 23—The creditors of the Springfield Body Corp. held a meeting this week and, while nothing definite was done, it is understood that 80 per cent of them are willing to accept

one-third in cash, one-third in 12-month notes and one-third in preferred stock. The company has been delayed six months in production because of the delay in completing its new building and, in addition, the season has been rather poor thus far.

St. Louis Gives to Red Cross

ST. LOUIS, June 25—At a special meeting of the board of directors of the St. Louis Automobile Manufacturers' and Dealers' Association Friday a donation of \$500 to the Red Cross fund was authorized. The Bittel Leftwich Co. donated 5 per cent of all sales of Lee tires to the Red Cross fund for June 23, 24 and 25.

Wilson Body Plant Coming

BAY CITY, MICH., June 23—The Wilson Body Co.'s plant, construction of which recently started in this city, is being rushed to completion and will be ready for occupancy by August 1.

Texas Dealers Meet

GALVESTON, June 23—More than 150 motor car, tractor and machinery dealers of Dallas and other outside towns of Texas attended the annual convention of the Texas Press Association which was held here last week. These visitors were brought here as the guests of Colonel Frank P. Holland of Dallas, publisher of Farm & Ranch. The particular object of the attendance of these representative business men upon the convention of newspaper editors was that closer acquaintanceships and friendships might be formed that would work for the mutual benefit of all.

The invitations which were extended by Colonel Holland through the officers of the Dallas Implement, Tractor Club and Saddlery Club and the Dallas Automobile and Accessory Men's Association met with a wholesale response of acceptance.

Besides the many Texas dealers and distributors who attended the convention here, Colonel Holland had among his guests Finley P. Mount, president of the Advance Rumley Company of La Porte, Ind.; W. Bradley Brinton, president of the Grand Detour Plow Co. of Dixon, Ill.; J. B. Bartholomew, president of the Avery Co. of Peoria, Ill.; George A. Yule, president of the Bain Wagon Co. of Kenosha, Wis.; H. C. Stahl, president of the Ohio Cultivator Co.; Fred W. Warner, president of the Oakland Motor Co. of Pontiac; Otis Friend, president of the Mitchell Motor Co. of Racine, and others.

Old Reliable is Crowded

CHICAGO, June 23—The Old Reliable Motor Truck Co. will build a two-story addition, 100 x 160 ft., to its plant at Michigan Avenue and Thirty-ninth Street.

More Room for Racine Tire

RACINE, WIS., June 23—The Racine Auto Tire Co. is planning a five-story plant which will have a capacity of 7500 tires a day. The factory will be 260 x 320 ft., built in units, 60 ft. wide. From 3000 to 4000 men will be employed.

10,000 Dealers Sending Delegates to Convention

150 Delegates Listed for Meeting in Chicago to Form National Dealers' Association

MILWAUKEE, June 25—More than ten thousand organized automobile dealers in the United States will be represented at the convention of distributors and dealers at the La Salle Hotel, Chicago, July 10 and 11, when one hundred and fifty delegates will meet to organize the National Automobile Dealers Association. The delegates to the convention will represent thirty-two States and about one hundred dealer and automobile trade associations. There will also be a number of delegates from unorganized territory and representatives of State organizations.

George W. Browne and Bart J. Ruddle, Milwaukee, are serving as chairman and secretary of the temporary convention, and the organization committee consists of Albert T. Clark, Kansas City, Kan.; G. A. Will, Minneapolis, Minn.; Edwin P. Bodley, Chicago, Ill., and Ernest T. Conlon, Grand Rapids, Mich.

Headquarters will be at the La Salle Hotel and meetings will likewise be in the La Salle convention hall. It is the intention to make the national association the parent body to State and local associations and to handle the various questions affecting dealers that are at present uppermost in the motor world, through an executive. The temporary organization took a leading part in eliminating the 5 per cent tax from the war revenue bill after it had reached the Senate finance committee.

St. Louis for a "National"

ST. LOUIS, June 25—Two delegates from the St. Louis Automobile Manufacturers' and Dealers' Association will attend the organization meeting of the proposed National Association of Automobile Dealers to be held in Chicago July 10 and 11. The local association has approved of the general plan of such an organization.

Atlas Wins from Hobbs

CHICAGO, June 23—The Atlas Specialty Mfg. Co. has won the suit brought against it by the Hobbs Patent Co. in the District Court of the United States for the Northern District of Illinois, Eastern Division, Nov. 22, 1915, for infringing on its patent No. 901,616, covering radiator and hood covers. Judge Carpenter on Oct. 23, 1916, decreed the Hobbs patent void for want of patentable novelty. This decision was appealed only to be sustained. The Hobbs company then filed a brief for rehearing with the result that the Court of Appeals decision was affirmed and the suit settled in favor of the Atlas company.

War Brings Airplane Activities

Everybody Wants to Fly

WASHINGTON, June 22—Seaplanes of the tractor type, which are really flying boats, are being used, as well as various types of air-craft, in connection with regular military training, as well as training in flying which is being given prospective officers and men in both the Reserve Flying Corps and the Naval Flying Corps.

College men, automobile salesmen, mechanics, chauffeurs, men who operate their own motor cars and those interested in speed boats seem to be particularly anxious to get into the flying corps. A large proportion of the wealthy sportsmen who have learned to fly, a number of whom own their aeroplanes, have applied and they make very desirable material. Among the well-known young men who have filed their applications are J. P. Warburg, of New York, son of Paul M. Warburg, of the Federal Reserve Board; two sons of Henry P. Davison, the New York banker who is a partner in J. P. Morgan Co., H. P. Davison, Jr., and F. Trubee Davison; W. A. Rockefeller, E. R. L. Gould, G. C. Depew, and J. M. Vorys, all of New York, and R. A. Lovett of Boston.

Thousands have applied for enrollment in the Naval Reserve Flying Corps, and the applications are still pouring in. Over 800 applications have been received from Boston alone, a much larger number from New York, and hundreds of young men in Philadelphia, Baltimore, Washington, Chicago, Pittsburgh, Cleveland, Detroit, and in fact nearly every city in the country have applied.

The officers of the Naval Flying Corps who have been in training at the Navy Aeronautic Station at Pensacola, Florida, since last December, are just completing their first course. Most of the 250 men who were enlisted in the navy for aeronautic duties only are also at Pensacola, undergoing instruction.

Will Build Big Plane Plant

TOLEDO, OHIO, June 22—Orders for 1000 battle planes received by the Curtiss Aeroplane Co. will speed up work at the branch factory of the Willys-Overland Co., which is devoting its activities to airplane manufacture. Buildings will be erected in connection with the airplane business in this city to cost more than \$1,000,000. Although complete planes will be built in Toledo with the establishment of a branch Curtiss factory in West Toledo, President John North Willys, of the Willys-Overland Co., stated that they might not be given field tests here. "The motors," he said, "are given a severe block test."

May Put in Aviation Course

DETROIT, June 23—It is rumored that the Michigan State Automobile School will be made one of the official motor schools in connection with the Selfridge

aviation field and that the enlisted men at this field will receive their technical instruction in Detroit. This information is not yet authentic, as it has not yet been confirmed by the Government. The school has prepared a special course to train high-grade mechanics in the mechanical work connected with aviation.

Marmon to Make Motors

INDIANAPOLIS, June 23—The Nordyke & Marmon Co. expects to manufacture approximately 1000 airplane motors for the United States Government within the next ninety days. Within sixty days the company will occupy a new addition to its plant 100 x 350. Another building of the same size will be completed in ninety days. Pending the completion of these improvements, the company is proceeding with the manufacture of motors on a large scale. The motors are to be used in airplanes at training camps in the Middle West.

Curtiss Plant for Toledo

TOLEDO, OHIO, June 23—John N. Willys will become the new president of the Curtiss Aeroplane Co. and Toledo will soon have within its boundaries a mammoth plant close to the Willys-Overland Co. factory for making all Curtiss motors. The present Curtiss plant at Hammondsport, N. Y., is inadequate to meet present demands.

British experts have visited Toledo and looked over the Overland factory, which they claim is the best fitted plant in the world for making airplane engines. Willys in a statement says:

"The Willys-Overland Co. has been preparing for the manufacture of airplane motors for nearly a year. It has had two engineers who just recently returned from England studying the English method of manufacture, so we are familiar with the latest English and French practice in building motors. We have a surplus quantity of machinery necessary for motor manufacture, so we are in good shape to take care of governmental requirements in connection with the Curtiss company. There is no question about the necessity of the airplane in war, and it is generally conceded by British officers with whom I have talked that airplanes will be in general use after the war because of the large number of aviators trained for fighting."

Aircraft Board Will Call Upon Many Industries

WASHINGTON, June 23—The Aircraft Production Board will utilize manufacturing equipment in many different industries in building the great number of aircraft for which plans are now being made and existing aircraft factories will be enlarged and concentrated upon some one of the types of machines needed by the war and navy departments. This plan, it is stated, has been used to some extent by both England and France. It also is stated:

"The American automobile industry is the most highly organized and the most extensive

of its kind in the world, and the same system of standardized parts and quantity production of machines which has enabled the United States to have three and a half millions of automobiles on the road where all the other nations together have less than a million, will be turned to the making of aircraft."

That motor building plants, sewing machine and typewriter plants and woodworking and other institutions also will be called upon to do their part in the building of aircraft is probable.

Mott Called to Washington

FLINT, MICH., June 22—C. S. Mott, one of the directors of the General Motors Co., has been summoned to Washington by Howard E. Coffin to confer with the National Defense Council.

Lets Fourth Bird Field Contract

WASHINGTON, June 22—The Government has let the contract for the fourth of the new government flying fields, this one to be built at Belleville, Ill., 23 miles from East St. Louis. It will be a standard two squadron field, accommodating 300 student flyers, with the requisite number of officer instructors, mechanics and enlisted men, and providing hangars for 72 training planes. Construction of the buildings and the preparation of the field will begin immediately.

The location of the fields already announced are Dayton, Ohio; Mt. Clemons, near Detroit, Mich., and Rantoul, near Champagne, Ill. The Government's present plans contemplate letting the fifth contract in about two weeks, and the remaining four of the nine fields already authorized at successive intervals of the two weeks thereafter.

Recommend War Road Building

NEW YORK, June 25—A meeting held at the Automobile Club of America passed a resolution urging that the highway departments of the States co-operate with the War Department in the investigation of highways and the building of roads which will be of greatest value; the transportation of products makes certain highways important. It was also suggested that railroads should not be permitted to place an embargo on road building machinery and materials.

Revenue Bill Delayed

WASHINGTON, June 23—Indications now are that the Senate finance committee may not finally complete the war revenue bill for 2 or 3 weeks. This is due to the fact that both Houses of Congress are grappling with the so-called food control bill, and this measure is not expected to pass the Senate for some weeks. Therefore, the Senate could not act upon the revenue bill if it were introduced until the food bill is disposed of. Indications continue to be that the excess profits tax will be placed at around 25 per cent.

Ford Tractor Converter Demonstration Sells 21

Farmers Flock to Los Angeles Demonstration and See 7-In. Plowing—The Exhibitors

LOS ANGELES, June 23—As the direct result of the first competitive test of Ford farm tractor devices ever held in southern California, staged in a field near Los Angeles recently, twenty-one sales were made before the demonstrations were concluded. Tractor users and prospective purchasers were in attendance in large numbers, and prominent among the crowd were about a dozen women, who evidenced as keen an interest as did the men. Some of the women are land owners, who are deeply appreciative of any device that tends to improve the efficiency of cultivation.

The field was what is termed adobe soil that had not been cultivated for years and was packed hard and firm by rain and sun.

Giant tractors have been in use in southern California for a number of years, but their operation has been confined practically exclusively to vast acreages. Their initial cost has been prohibitive for the small farmer, and the community tractor, such as is customary in the East with threshing machine outfits, is little known. The small track-laying type of machine is favored by the orchardists for work under low branching trees where the soil is irrigated, because they do not mire down and stall, but even their use at this time is comparatively small.

For open field work, though, the Ford type of tractor is making good, and seems likely to increase in general use.

The machines in the contest were the Ford Mule, the Los Angeles Tractor, both made in Los Angeles, and the Tracford, a Detroit device. A 7-in. depth was required, and after turning the soil it was necessary to disk and harrow. There was little to judge between in the work of the three machines, as each seemed to meet all requirements and do exactly what was demanded of it.

None of the three tractors incapacitates the Ford car for ordinary road use. The Los Angeles tractor and Ford Mule contested with the body of the car on the frame but the Tracford used only the chassis and the original pneumatic tired front wheels. It is claimed that it requires only about 20 minutes to change over the car to a tractor for either of the two first named, and about 2 hours to make the switch for the Tracford.

Tour for Your Vegetables

LOUISVILLE, KY., June 23—As a measure to combat the high cost of living, truck growers and farmers of Jefferson County have suggested that motorists, in their drives, stop at a convenient farmhouse and purchase direct from the farmers all of their fresh vegetables.

In the case of lettuce the customer would be sure of a saving of several times the cost of the product, for the farmers are selling to the retail grocers lettuce at from $\frac{1}{4}$ to $\frac{4}{5}$ of a cent per head. The retail grocers are in turn selling lettuce at from 5 to 10 cents per head.

Packard Helps Government Get Drivers

DETROIT, June 23—The Packard Motor Car Co., co-operating with the United States Government, is advertising for drivers and competent mechanics for the motor truck division of the United States Army and for foreign service, by opening its employment department to applicants for such duties. The company is publishing advertisements daily in the newspapers to further this work.

New Chalmers Body Design

DETROIT, June 23—A new Chalmers body has been fitted to the present chassis and is called the Six Duplex. It is a four-passenger design and has speed lines. The body is a four-door type with slanting windshield, raked steering column, leather Scotch plaited upholstery and Pantasote top and side curtains. This car sells for \$1,475, f.o.b. Detroit.

Los Angeles Abandons Gasoline Gravity Test

Boiling Point Tests Substituted to Allow Use of Lower Grade Fuel Because of Shortage

LOS ANGELES, June 23—Declaring that the shortage in gasoline and fuel oils is so serious and the demands upon the supply so great that quality must be sacrificed to obtain greater quantity, City Oil Inspector Blackmar has asked the city council to adopt an ordinance establishing new standards for gasoline.

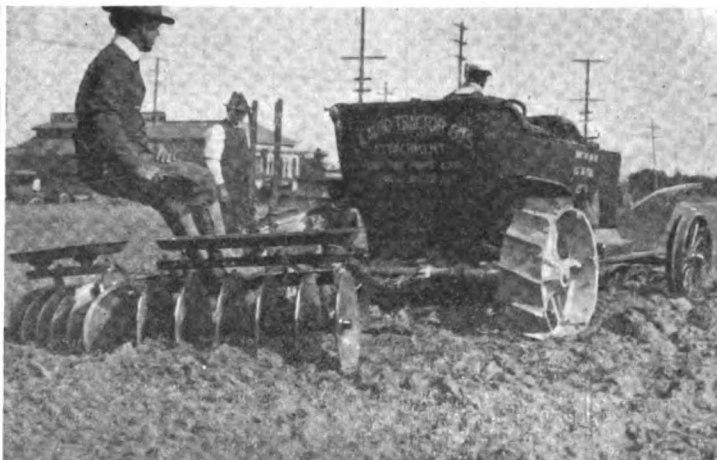
The present specifications, the first of the kind to be adopted, and said to require the highest gravity test, may have served the purpose for which they were intended, that of protecting the consuming public against adulterated fuels, but the new ones are declared to be more in conformity to actual facts and modern conditions of manufacture.

The gravity tests are eliminated and boiling points substituted. The apparatus for making the tests has been standardized and the methods of conducting the tests clearly defined. Oil men say the lowering of the gravity requirement will not sacrifice the quality of gasoline in the common acceptance of that term.

In a test of various fuels conducted here yesterday, synthetic gasoline, which has a lower gravity test than others showed greater mileage. This "cracked" gas is now prohibited, because of the ordinance requirements, and is not produced in commercial quantities. However, oil men declare that it can be, if its sale is permitted, and its use will help augment the supply. It cannot be produced to sell for any less than the distilled gasolines.

16,015 Overland Cars in May

TOLEDO, June 23—The Willys-Overland Co. manufactured 16,015 cars in May. Present indications are that the company will manufacture 100,000 to 110,000 cars in the first six months of the current year.



Here are two of the Ford Tractor converters that were demonstrated in Los Angeles. The demonstration drew great crowds and 21 machines were sold on the spot

[illegible]

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leeco-Newville, "Titan" Tillotson, "Astr" Atomizer, "Rech" Reichenbach, "DP" Dry Disk, "DP" Dry Plate, "G" Gearless, "F" Friction, "QDR" Quick Detachable Reversible, "QDC" Quick Detachable Clincher, "R & M" Robbins & Myern. NOTE—37/52 1/2" means that the rear tires are 37 1/2%, and the front are smaller.

Mutual Insurance for Kansas City

KANSAS CITY, June 23—Kansas City dealers, considering the question of insurance, asked E. E. Peake, secretary of the Motor Car Dealers' Association of Kansas City, to work out a plan for mutual insurance. The result is the United States Automobile Insurance Exchange, which now has 100 subscribers, mostly in Kansas City, Joplin, St. Joseph and Sedalia, Mo. Peake is attorney for this reciprocal insurance plan, which has the endorsement of the local association and on its board of advisers. Peake will soon extend the scope of the exchange to other states. Membership is confined to dealers.

325,000 Cars for Ohio

FINDLAY, O., June 25—When the end of the season comes for purchasing automobiles in this State it is estimated that Ohio will have 325,000 automobiles. A conservative estimate places the average value of each car at \$800, which would show that \$260,000,000 has already been invested in cars.

Aurora Stages Used Car Show

AURORA, ILL., June 23—The recently organized Aurora Automobile Trade Association put on a used-car show at the Third Regiment Armory June 21, 22 and 23. Every member of the association placed all of his used cars upon sale in this show, and prospects for used cars were invited to exhibit the joint display. An orchestra furnished music and a small admission fee was charged in order to

defray the expense of the armory rental, music and other expenses. Each car offered for sale was previously inspected by a committee and pronounced in good condition, thus protecting all purchasers. This was the first show of the kind ever held in Illinois.

Books

Reading books is one of man's greatest means of progress. The books below have been received and are here reviewed by Motor World.

Short Talks on Retail Selling; by S. Roland Hall; Funk & Wagnalls Co., New York. The author published much that is in this book in a little magazine called *Selling Sense*. The name of the magazine well describes what is in the book—*Selling Sense*. Much of what is in the book the average reader may already know—but never uses. The book is an awakener of sleeping mental powers.

Retail Selling; by James W. Fisk; Harper & Brothers, New York. The book goes quite thoroughly into selling. It takes up the analysis of the selling field, analysis of competition, personal salesmanship, studying customers, training salesmen, supervising salesmen and similar subjects. A pleasant feature of the book is its stories used to illustrate points.

New Dealer Building in Buffalo

BUFFALO, June 23—Automobile row in Main Street has been further increased by the erection of a new single-story

building. Among the occupants are: Joseph J. Ryan and George A. Pratt, formerly dealers in the H. A. L. and Grant Six in New York, who have taken the Buffalo agency for the Stutz. Ryan is a son of Thomas Fortune Ryan of New York City. A. B. Schultz and his brother B. David Schultz have also taken quarters in the new building and are handling the Mercer; S. Story Ramsdell, Empire dealer, also has leased a store.

Peoria Plans Booster Trips

PEORIA, June 23—Peoria dealers are planning several business booster trips through Peoria and adjoining counties for the summer months. A similar plan was followed last year when numerous trips were made and the dealers netted a neat business. Large posters were distributed through the towns to be visited several days in advance and prospective purchasers gathered to meet the dealers and see the new models. Eight or ten trips over different routes are planned for this season.

Ohio Can Revoke Licenses

COLUMBUS, OHIO, June 23—Quite a few new laws were enacted by the last session of the Ohio General Assembly. Most of these laws become effective soon. The most important is one permitting the courts to revoke licenses of owners who have violated speed laws, or failed to stop after an accident or operated a motor vehicle while intoxicated. For the second offense the courts can revoke licenses for a period not to exceed 2 years. This law is effective July 2.

Coming—THE SHOW CALENDAR—Events

Shows

Spokane, Wash.	Interstate Fair	Sept. 2-9
Milwaukee, Wis.	Third Annual Fall, State Fair Park, West Allis.	Sept. 9-15
Peoria, Ill.	Peoria Exposition and International Farm Congress and Soils Exposition, tractor display and demonstrations.	Sept. 18-29
Dallas, Tex.	Dallas Automobile & Accessory Dealers' Assn., State Fair, S. I. Munger, Mgr.	Oct. 18-28
Washington, D. C.	Carnival and Open House Week, Automobile Trade Assn. of Washington.	Jan. 11-18

General and Racing

Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	July 4
Omaha, Neb.	Championship	July 4
Tacoma, Wash.	Championship	July 4
Visalia, Cal.	Road Race	July 4
Spokane	Track Race, R. A. Hiller, Mgr.	July 4
Benton Harbor, Mich.	Track Race, F. A. Fitzsimmons, Mgr.	July 4
Chicago, Ill.	LaSalle Hotel, Convention of National Automobile Dealers' Assn.	July 10-11
Rochester, N. Y.	Hill Climb	July 14

Des Moines, Ia.	Championship	July 14
Missoula, Mont.	Track Race, R. A. Hiller, Mgr.	July 15
Buffalo, N. Y.	Intercity Reliability	July 17-19
Intercity Reliability	American Auto. Assn.	July 17-19
Anaconda, Mont.	Track Race, R. A. Hiller, Mgr.	July 23
Great Falls, Mont.	Track Race, R. A. Hiller, Mgr.	July 29
Billings, Mont.	Track Race, R. A. Hiller, Mgr.	Aug. 5
Fremont, Neb.	National Tractor Demonstration.	Aug. 6-18
Flemington, N. J.	Track Race	Aug. 17
Elgin, Ill.	Road Race	Aug. 18
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Sept. 3
Cincinnati, O.	Championship	Sept. 3
Red Bank, N. J.	Track Race, H. P. Murphy, Racing Sec.	Sept. 6
Pike's Peak, Col.	Hill Climb	Sept. 8
Providence, R. I.	Championship	Sept. 15
Allentown, Pa.	Track Race, H. P. Murphy, Director of Contests.	Sept. 22
Trenton, N. J.	Track Race, H. P. Murphy, Director of Contests.	Sept. 28
Uniontown, Pa.	Speedway Races	Sept. 30
Uniontown, Pa.	Championship Races, Uniontown Speedway Assn.	Oct. 6
Danbury, Conn.	Track Races, Danbury Fair, H. P. Murphy, Director of Contests.	Oct. 6
Chicago, Ill.	Race	Oct. 13
Richmond, Va.	Track Races, Virginia State Fair, H. P. Murphy, Director of Contests.	Oct. 13

The Twelve-Cylinder

National

—A Thoroughly Competent Car

No dealer handling this twelve-cylinder National need fear competition from any source.

In the showroom, where beauty first engages interest, its grace and elegance unfailingly appeal.

In the demonstration, where performance is the basis of sale, this car acknowledges no peer.

Our own tests, conducted under the most severe conditions, have convinced us that it will outperform any genuinely "stock" car in the world.

Despite the twelve-cylinder National's great power and gen-

erous size, it is extremely economical.

It delivers more miles per gallon than any other car of like size and power, through an appliance developed by National which saves fuel.

Because of its smooth and even power it is exceptionally easy on tires.

It will deliver the highest type of service at consistently reasonable cost.

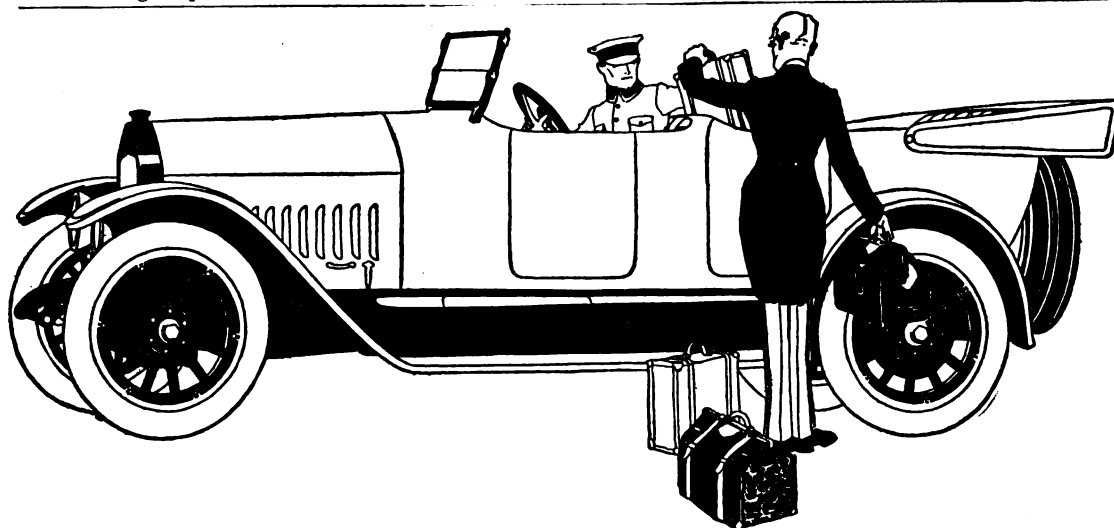
National builds the counterpart of its Twelve in a Six, identical save for the motor. Both cars may be had in a complete range of body styles.

The Six \$1850 The Twelve \$2250

Seven-Passenger Touring Car
Four-Passenger Sport Phaeton

Wheelbase 128 inches

Four-Passenger Roadster
Convertible Touring Sedan



NATIONAL MOTOR CAR & VEHICLE CORPORATION • INDIANAPOLIS
Seventeenth Successful Year

When writing advertisers please mention Motor World—It identifies you

Something More

—for dealer—as well as for buyer

Most any motor car today is reasonably sure to go.

But it is in the *manner* of its going that the Cole Eight gives *something more*.

And this *something more* is just as great an asset to the dealer as to the buyer.

Quiet, well bred, handsome—the Cole Eight travels majestically.

Gear shifting is negligible. Comfort is everything.

The fatigue and tension of driving vanish. Real recreation takes their place.

Yet with all its power, all its flexibility, the Cole Eight out-economizes not only other cars of its type but many that are less powerful.

The Cole Eight is *more* than a mere automobile. It does *more* than merely go.

Such a car through its *something more* to the consumer becomes materially *something more* to the dealer.

There is an opportunity *now* for you to become a Cole Eight dealer if you measure four square.

Talk business with us.

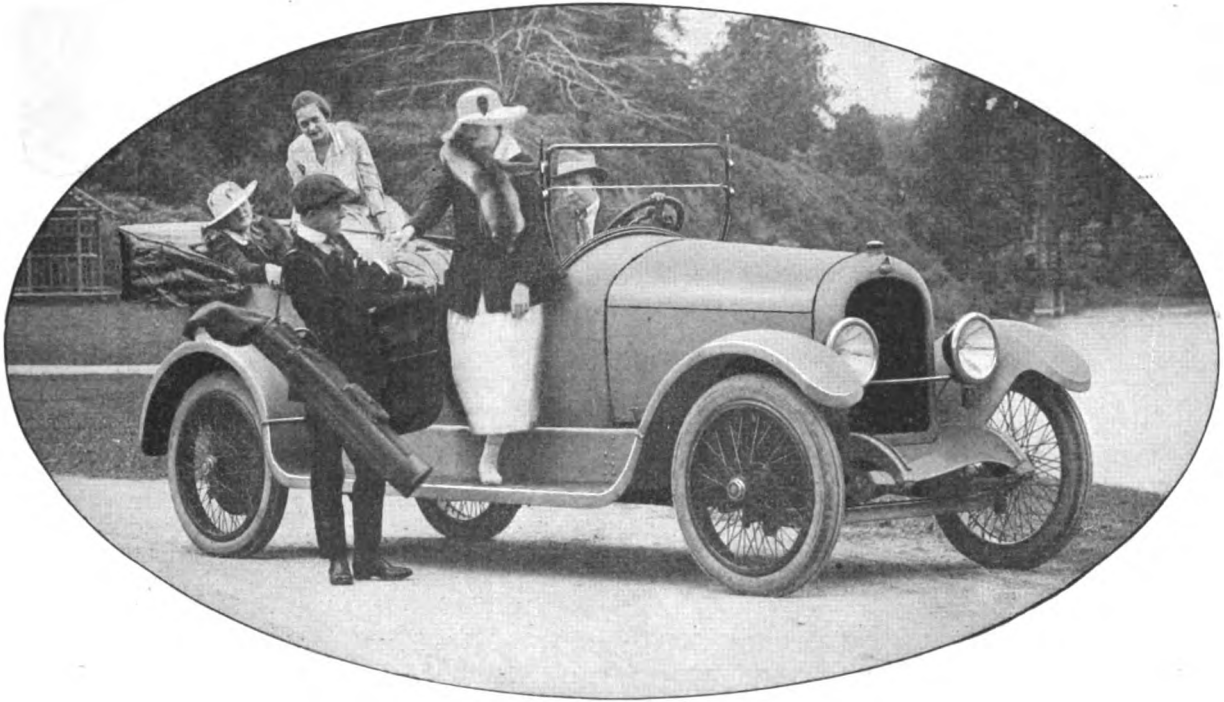
Prices

Seven Passenger Cole Eight Touring Car	- -	\$1795
Four Passenger Cole Eight Roadster	- -	\$1795
Four Passenger Cole Springfield Tour-Coupé	- -	\$2295
Seven Passenger Four-Door Toursedan	- -	\$2495

*f. o. b. factory
and subject to change without notice*

Cole Motor Car Company
Indianapolis, U. S. A.

COLE
8



The **MARMION**
and seventeen other Monarchs of Motordom
carry the
WALTHAM AUTOMOBILE CLOCK
as standard equipment

Why are these cars so successful? Certainly one reason is this: *they realize that the public appreciates complete equipment.*

They have adopted the Waltham because, with its two mainsprings, its fifteen jewel, eight-day movement, and its winding indicator, it is the only accurate automobile time-piece made.

Brewster	Franklin	Owen Magnetic
Cadillac	Haynes-12	Packard
*Chalmers	**Hudson	††Pierce-Arrow
†Cole	Locomobile	Rauch & Lang
Crane-Simplex	Marmon	Stearns
Detroit-Electric	Mercer	Winton

*Limousine, Landaulet

†Sedan, Coupe

**Limousine, Landaulet, Town Car, Landaulet-Limousine

††Enclosed Bodies

Is there a clock on your car?

WALTHAM WATCH COMPANY
WALTHAM, MASS.



GURNEY



This Is a Ball Bearing Worth Talking About

I am glad the car I sell is equipped with GURNEY Ball Bearings—easy to explain why they were selected.

GURNEY Ball Bearings carry heavier loads than other ball-bearings of same size because the balls are bigger and there are more of them. This means a bigger "factor of safety"; and longer life for bearings.

Then, too, Gurney Ball Bearings are two bearings in one; in the wheels for example, they take the thrust load (the push of car) and the radial load (weight of car). The one bearing means simplicity, greater strength and less friction.

If your car is equipped with Gurney Ball Bearings, do not forget that you have something worth talking about.

GURNEY BALL BEARING CO.

Conrad Patent Licensee

Chicago, Ill.

Jamestown, N. Y.

New York, N. Y.

159

WETTING

When writing advertisers please mention Motor World—It identifies you

MARMON 34



A 350% Sales Increase In Binghamton, N. Y.

In 1916 the Binghamton Motor Car Company sold 34 Marmon Cars. Their requirements for 1917 are 153 Marmons. Here is an increase of 119 cars, or 350%.

BINGHAMTON is a city of about 57,000 population in South Central New York, and a fairly representative city of that size. Conditions are no different there than they are in many other cities of the same size.

This instance of a 350% increase in business is given to show the general tendency to Marmon Cars.

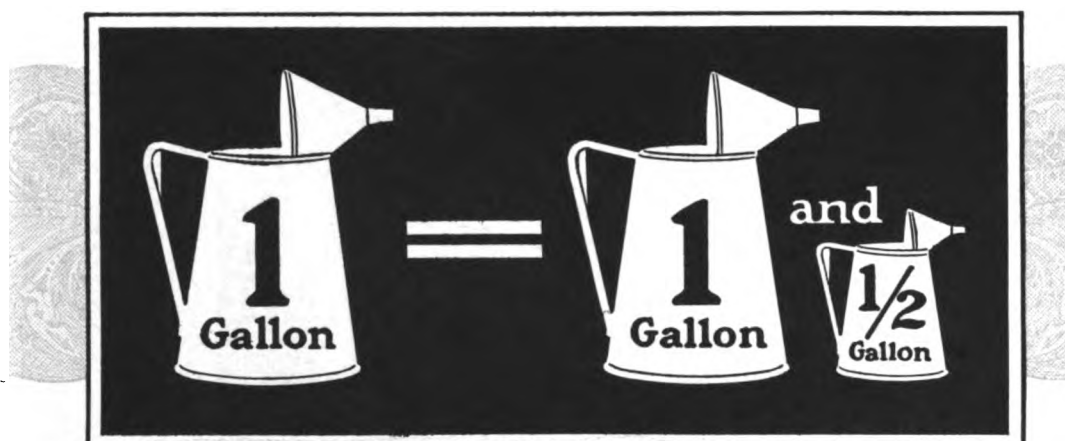
In every community, irrespective of size, the market for large, powerful cars is increasing. But such cars must be light in weight, economical to operate, beautiful in appearance, and easy to handle on all roads.

The Marmon meets these requirements.

The next page gives one vital reason why discriminating buyers have made and are making the Marmon their choice.



MARMON 34



Where a Gallon Equals a Gallon and a Half

The Marmon 34 has extended the boundary lines of a gallon of gasoline by many miles. Its mileage exceeds like cars from 50 to 75 per cent. Records from many owners show this.

Measured by distance a gallon of fuel in the Marmon is equal to a gallon and a half in other cars of its size and power.

Measured by money, the sum saved is considerable each season. It also saves a like percentage in tire expense.

But the Marmon is more than economical—it broadens your touring range. You can drive one or two hundred miles in a day without fatigue.

Scientific construction, 1100

pounds lighter weight, perfect balance, reduced inertia, and motor efficiency all contribute to its important advantages.

Easy to handle, comfortable to ride in, beautiful to look at, the Marmon 34 has won the public's favor and fairly gained the leading place among major class cars.

Wheelbase, 136 inches. Many body styles—open and closed.

Correspondence is invited with progressive dealers where the Marmon is not represented.

NORDYKE & MARMON COMPANY

Established 1851

:

INDIANAPOLIS, INDIANA



The Consolidation of Permalife and W. L. Battery Company

**Is the result of the enormous increase of the
National Storage Battery Exchange Service**

We have been proving constantly that Permalife is the greatest advance in years in convenience to the motorist. It has been necessary to add to our equipment to meet the growing demand for Permalife, with the result that we have secured, for life, the services of Mr. Frederick Wright, a genius who has been responsible for the success of more than one storage battery, and the factory of the W. L. Battery Company, at Poughkeepsie, N. Y. This large, modern plant, and, back of the plant, Mr. Wright, will enable us to supply our customers more promptly. The quality that has been built into two distinct batteries will now be built into

Permalife

"LASTS FOREVER"

THE NEW NAME OF THE ONLY NATIONAL STORAGE BATTERY EXCHANGE SYSTEM will more accurately express the spirit of our service—that from the standpoint of the motorist, Permalife lasts forever—and will avoid confusion with automobile accessories with similar names.

DEALERS, ATTENTION

**Permalife merchandising plan is the most astounding
Battery proposition ever offered the motorist.**

Do you remember what it meant to have the first guaranteed tire? Here is another sensation in the automobile field that is sweeping the country. Permalife is the first real guaranteed storage battery—the battery that never wears out, from the standpoint of its service to the user. It puts money in his pocket as well as yours. You can control the battery business in your territory with Permalife. If there is no Permalife dealer in your town, wire Dept. M W-7 at once for our unusually attractive proposition.

Permalife Storage Battery *Company, Inc.*

Factory and General Office: Poughkeepsie, New York
General Western Office: Indianapolis, Indiana

Service Stations and Exchange Depots Everywhere

When writing advertisers please mention Motor World—It identifies you



AC

*The Standard
Spark Plug
of America*

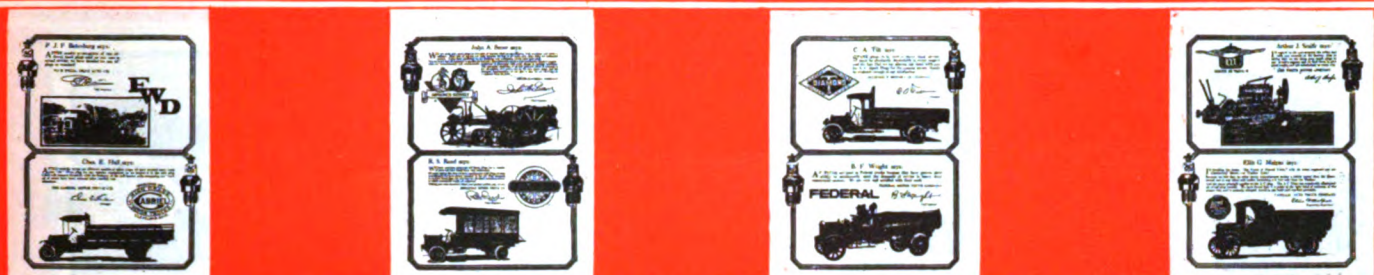
Dealers

In this week's issue of THE AUTOMOBILE is published a series of letters from nearly one hundred engineers representing the leading motor car, motor truck, motorboat and motor manufacturers in America.

Everyone is a striking testimonial of the performance and inherent quality of A-C—the Standard Spark Plug of America.

A-C Plugs have always been the quality plug. Dealers who have handled them do not have to be told that. Our publication of these letters therefore is to bring home forcibly to dealers and jobbers everywhere the conclusive proof of their excellence from the men who are best able to judge from actual test and performance.

When writing advertisers please mention Motor World—It identifies you



Building Your Reputation

Selling spark plugs is like selling any other article of merchandise. You are selling a reputation.

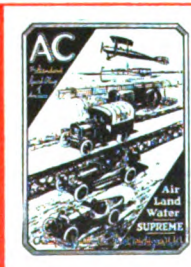
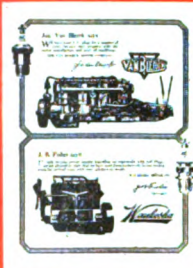
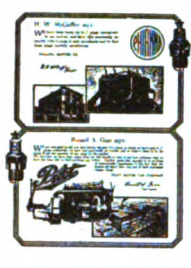
You are building your own business reputation on the goods you sell.

When you decide to sell spark plugs why not satisfy yourself that the plugs you sell will bring you business after they are sold and thereby make a permanent customer.

One good article recommends your store to the motorist for the hundreds of others he is going to need.



When writing advertisers please mention Motor World—It identifies you



AC SPARK PLUGS
THE STANDARD PLUS OF AMERICA
AUTOMOBILE SERIES
SOLD HERE

A-C SPARK PLUGS

Why Carry Several Makes ?

You are now carrying several makes of spark plugs. Why?

Because motorists want them?

No—but because you are not satisfied in your own mind which is the best.

If you could conscientiously guarantee a spark plug to be the best—a plug you could sell and guarantee—you wouldn't sell any other make.

Would you?

Every spark plug manufacturer claims to have the best plug, doesn't he?

That is why you carry so many different brands in stock. If you carry the A-C line and stock all sizes it means a quick sale, quick profit.

The more brands you carry the more time wasted by your salesman in debating the merits pro and con—which many times results in losing the sale entirely.

Champion Ignition Company

ARK PLUGS

A-C SPARK PLUGS

How Are You Going to Know?

How are you going to know?
 If you take out life insurance, do they take your word for your physical condition?
 If you ask for credit at the bank do they accept your word for your financial condition?
 If you hire a man, do you take him on his own recommendation or do you ask for references?

That is why we have published these remarkable letters from all the leading engineers representing the best of America's cars, trucks, boats, tractors, and aeroplanes, A-C Plugs used in these motors bears out our statement—The Standard Spark Plug of America.

Why bother with a dozen different makes of plugs when here is one line that you know you can recommend, sell, and keep your customers satisfied.

Don't take our word for it.

Read these remarkable letters. If you have not seen this advertisement in THE AUTOMOBILE, send for a free copy today!

The A-C supply of dealers' helps, window displays and sales literature will form a wonderful aid in keeping A-C's before the purchasing public.

Send for the letters and information NOW.

Flint, Michigan

When writing advertisers please mention Motor World—It identifies you



SAXON "SIX"

LOOK BACK OF THE EFFECTS OF SAXON "SIX" PERFORMANCE

Back of the efficient functioning of every part in this fine mechanism called a motor car—

Back of the smooth and pliant power-flow of the motor as it bears you on and on—

Back of the resilient dip and lift of the great springs as they turn jar and shock to easy buoyancy—

Back of all the speed and power called forth instantly by the pressure of your foot upon the accelerator—

Back of and beyond these there is a something that stirs and kindles the imagination.

And that thing is the ideal pulsing in every workman, from the executive in the office to the mechanic in the shop, welding their individual abilities into a common unity of effort to build the best they can.

Without the fusing spirit of a purpose such as this Saxon purpose, Saxon "Six" would have been far less fine a car.

Before it, capitulation to expediency and compromise to competition are ruthlessly rejected.

It holds the executive steadfast to the policy of quality, ofttime in the face of greater immediate gain through a slight cheapening in this standard or that.

It holds the mechanic true to his task, gives him pride in his handiwork, stimulates him to put forth the best of his skill.

To know that there is an ideal actuating the Saxon company is interesting in one way, because it pictures a further phase of motor car building than the outward and commercial aspect.

It is interesting, in another way, because it is the most effective guarantee and the most dependable insurance you could have that your investment in Saxon "Six" is an investment that will repay you fully in both quality and quantity of service.

Saxon "Six," \$935; Saxon "Six" Chummy Roadster, \$935; Saxon "Six" Sedan, \$1325; "Four" Roadster, \$495. Canadian prices, Saxon "Six," \$1260; Saxon "Six" Chummy Roadster, \$1260; "Four" Roadster, \$665. All prices f.o.b. Detroit.

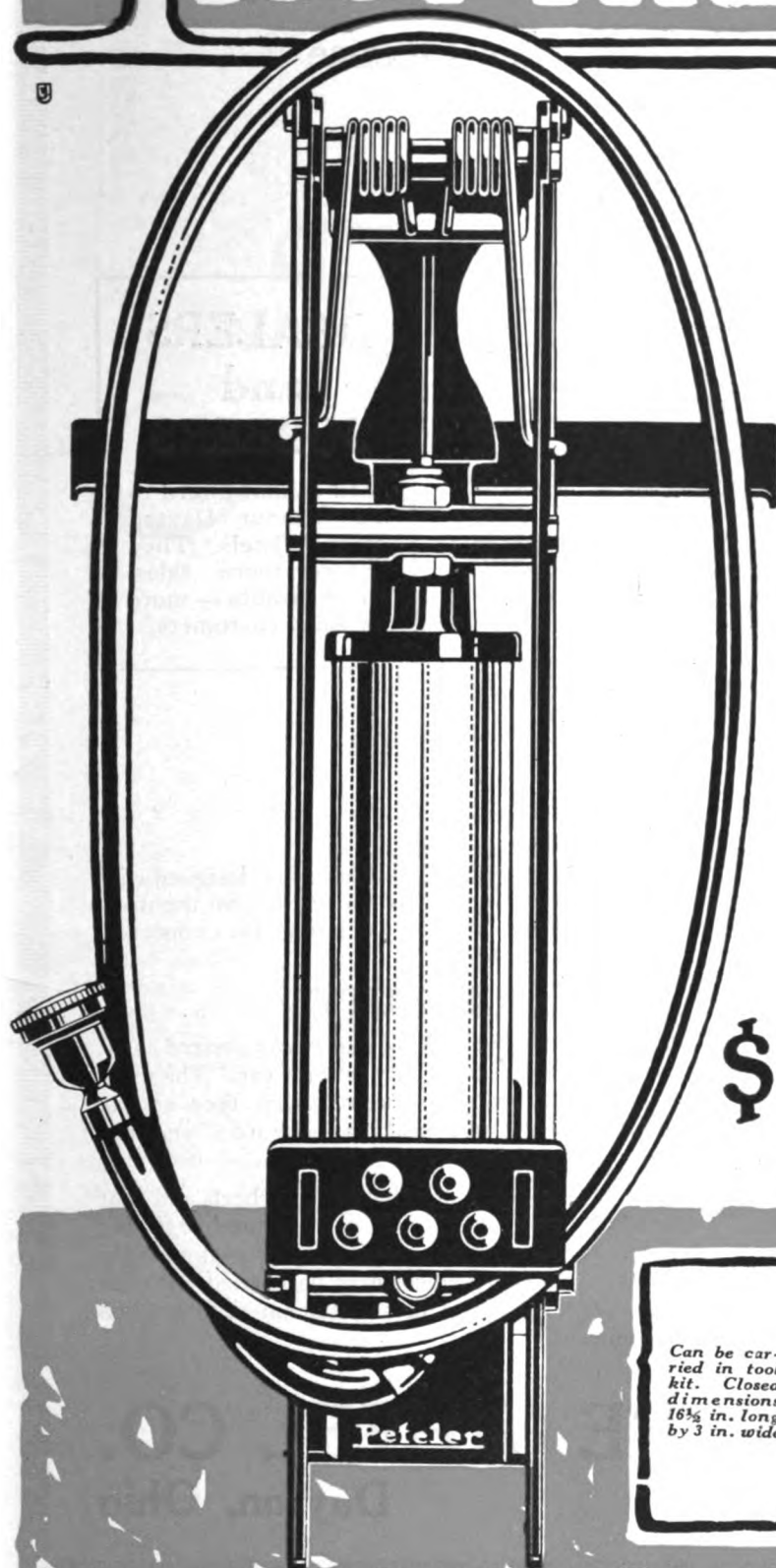
SAXON MOTOR CAR CORPORATION · DETROIT

When writing advertisers please mention Motor World—It identifies you

(119)

The Peteler

FOOT TIRE PUMP



**Does for Tire Inflation
What the Safety Razor
Did for Shaving**

**And Its Sales Possibilities Are
As Great**

WITH it the job is done more easily, quickly and is never shirked, thus doing away with the chief enemy of your tires—UNDERINFLATION.

Underinflation is the chief cause of tire trouble and expense. The Peteler Foot Tire Pump insures regularity of tire inflation because of its easy operation.

Using leg power—simply an up-and-down motion, your weight and your leg doing the work—you can inflate any size tire more quickly by minutes than with hand power and the best hand pump on the market.

And there is none of the back-breaking, blistering agony that accompanies the hand pumping—you calmly PEDAL your tire full of air.

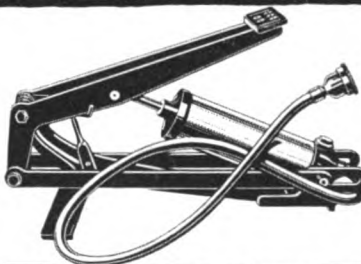
Fully patented, its construction is as precise, substantial and workmanlike as your motor.

This latest Peteler Product is another example of our business policy—to market only those accessories for which there is a real need, to satisfy that need in a novel and supreme way, and to finish our merchandise in a manner so high class as to induce a sales-winning appeal.

Every car owner who has a Peteler Auto Jack will want this new member of the family—the Peteler Foot Tire Pump.

\$5 WRITE NOW for our proposition
Moreau & Pratt, Inc.
1834 Broadway
New York City

Can be carried in tool kit. Closed dimensions 16½ in. long by 3 in. wide



Each Pump packed in wooden container

When writing advertisers please mention Motor World—It identifies you

DAYTON

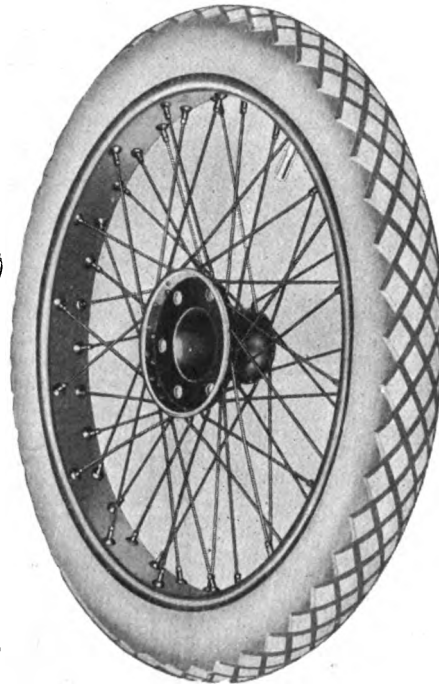
QUICK DETACHABLE WIRE WHEELS

For Ford Cars—Made Under License

Immediate
Deliveries
Guaranteed



WHEEL
Inner Hub
and Hub Cap



DEALERS
and
JOBBERs

You cannot afford to be without Dayton Wire Wheels. They insure more sales, more profits—more satisfied customers.

THE uppermost thoughts in the minds of all motorists are the appearance of their car and economy in operation.

Dayton Quick Detachable Wire Wheels for Ford Cars are the embodiment of both of these big features.

ECONOMY

Dayton Wire Wheels give 25% more tire mileage. Resiliency and heat radiation cause this tremendous saving. The steel rim with its steel spokes carries off the heat instead of locking it securely in the tire, as is the case of wooden wheels—and HEAT is the most dangerous and the surest of tire destroyers.

Sudden climatic changes do not affect Dayton Wire Wheels. Their scientific construction—the balanced triple spoke lacing—makes them the strongest and most satisfactory wheels ever devised for motor

car service. Dayton Wire Wheels are designed with just the proper number of spokes to give the maximum resiliency without affecting the important feature of *strength*.

BEAUTY

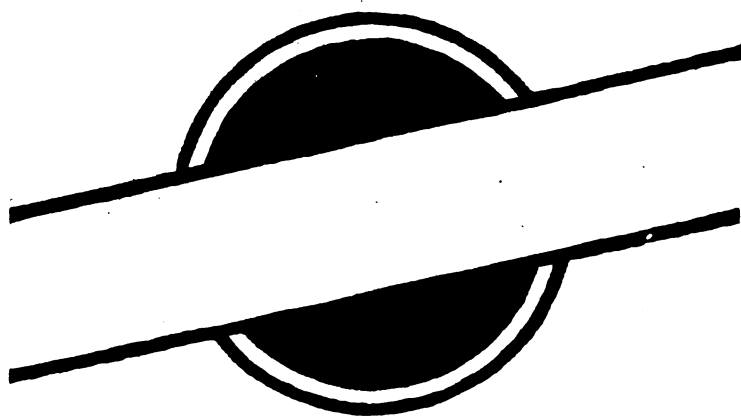
Dayton Wire Wheels, *furnished in any desired color*, add the last touch of beauty to your car. The modish appearance, the distinctive touch they add to Ford Cars, make an appeal that no Ford Owner can resist.

Five detachable and interchangeable wheels and four inner hubs make a set. *Unscrewing and replacing the hub cap is all that is necessary in changing the wheels.* The spare wheel may be carried with the tire inflated, ready for instant attachment to any hub mountings.

THE DAYTON WIRE WHEEL CO.

826 Miami Road

Dayton, Ohio



Next Week

in this publication, one of the best known and most successful manufacturers of passenger cars and one-ton trucks selling under \$800, will make an announcement of PROFIT-MAKING significance to every dealer and distributor in this business who is looking for a broader, more productive field in which to capitalize *fully* his merchandising ability.

Watch for this announcement.

For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.

Proving the Truth of

JUDGE THE PUBLIC OFFICIAL by how he makes good on his campaign pledges—judge the Liberty Car the same way. Here's what we said in our advertising—side by side with what owners and dealers now say. Draw your own conclusions.

About *Power* we said (Saturday Evening Post, April 21, 1917):

You want power and pep, pickup and snap—a car you will be proud to own and glad to drive—then try the Liberty. You will see the difference if you know other cars. On this basis alone the Liberty has sold itself to thousands of motorists who know—and on this basis it will sell itself to you.

Mr. G. Frank Young of Baltimore says (May 1, 1917):

"I have found the Liberty Car to be all that you have claimed for it. It has an *abundance of power which, coupled with comfortable riding and the ease with which it is controlled, makes the driving of a Liberty Six a real pleasure.* I believe the makers of the Liberty Six have incorporated in their car all that could be expected in one for which a higher price had been paid."

About *Easy Driving* we said (Saturday Evening Post, March 3, 1917):

How much fatigue will that save you in a day's motoring—that clutch that almost yields to the weight of your foot as you sit? Shift the Liberty gears—even from third to second at full speed—and get the new note of mechanical perfection. Pull the emergency with one finger—and see what happens. Get the vital fact that in all the motions of driving a Liberty there are only ease and pleasure—without effort.

Mr. T. H. Pierson of New York says (March 13, 1917):

"I particularly want to verify your claim of lightness of touch necessary to operate the clutch and the great power of the emergency brake. I have driven a great many different cars in the past ten years and *I have never found one to equal the Liberty for ease of driving.* It is particularly flexible under congested traffic conditions."

About *Easy Riding* we said (Saturday Evening Post, March 3, 1917):

We claim for the Liberty—unprecedented riding comfort. You have rattled in cars—you have been shaken up by car tracks and cobbles, ruts and pits. You have had to pick the smooth places—for comfort. Drive straight ahead in the Liberty, no matter what the road. There are no rattles. In the wide, deep, restful front or back seat you ride in perfect comfort. You swing along smoothly, absolutely at ease, supremely comfortable, at all speeds—over all roads.

Mr. W. S. Hamburger of Baltimore says (May 1st, 1917):

"I have never found a car so satisfactory from the standpoint of driver, passenger or owner as the Liberty. No other car I know of has as comfortable a rear seat as the Liberty. *Without shock absorbers or other contrivances, it gives the tonneau passengers real riding comfort.* It looks as if I would get ten thousand miles out of my tires. My expense in six months has been fifteen cents."

LIBERTY DEALERS, backed by the factory and by a car that everlastingly makes good, are building bigger business every day in 187 cities and towns scattered all over the United States. Even when

LIBERTY MOTOR CAR COMPANY, DETROIT

Percy Owen, President



LIBERTY

When writing advertisers please mention Motor World—It identifies you

a Year's Advertising

REPRESENT A CAR that will protect your reputation. No dealer signs a contract until he believes in the product—but be sure the car you handle will keep your promises. Here—in these endorsements of our claims—is the proof that the Liberty does just that. This business has come to stay.

About Owner Satisfaction we said (Literary Digest, March 24, 1917):

Here is a car designed from the first for you—the man who buys. The difference between the Liberty and all other cars lies, not in sales talk—not in theories—but in the way the Liberty satisfies the owner and driver—in actual use.

Mr. J. E. Campbell of Kansas City says (April 1st, 1917):

"I enjoy driving it better than any car I have ever owned. I have been driving cars for the last ten years and have owned and driven several different makes, some of them costing from two to three thousand dollars. I bought the Liberty because of its power and ease of manipulation."

About Quality at Moderate Price we said (Motor Life, Jan., 1917):

The Liberty succeeds because it meets the demand for a quality car, at a medium price, embodying every feature of owner comfort. The car itself is its own best salesman. It is self-selling—to motorists who know. That's why the Liberty is covering the country. Liberty salesmen don't argue over this car. They let their prospect drive—they let him ride—the car does the rest.

Mr. Ashbel Green of New York says (January 16, 1917):

"One of my friends who has been accustomed to using nothing but the so-called high-priced cars expressed some misgiving as to whether it would be possible to get what he wanted for the price of the Liberty. He now advises that the Liberty Brougham has given perfect satisfaction, and that his chauffeur—a man who is inclined to be very critical—has nothing but praise as to the way the car ran."

About Flexibility we said (Literary Digest, December 30, 1916):

Does your car steer hard? Steer the Liberty. Does your clutch throw hard? Try the Liberty clutch. Does your car ride hard in the back seat? Try the Liberty over the cobbles and the ruts. If you can't stop your car instantly, with a finger pressure, at full speed, try the Liberty emergency.

Mr. Nat Kaiser of Atlanta says (May 2nd, 1917):

"It has proven all you said of it, and I wish to especially commend the ease of changing gears. This has proven by itself to be a feature worth comment. The ease with which it is possible to drive in congested traffic, and the possibility of running at a very slow speed without changing gears is a real comfort."

the public wasn't buying cars, the Liberty was going across in big sales. Your territory may still be open. See the Liberty—and see us—if you are looking for real business.

LIBERTY MOTOR CAR COMPANY, DETROIT

Percy Owen, President

TY SIX



When writing advertisers please mention Motor World—It identifies you

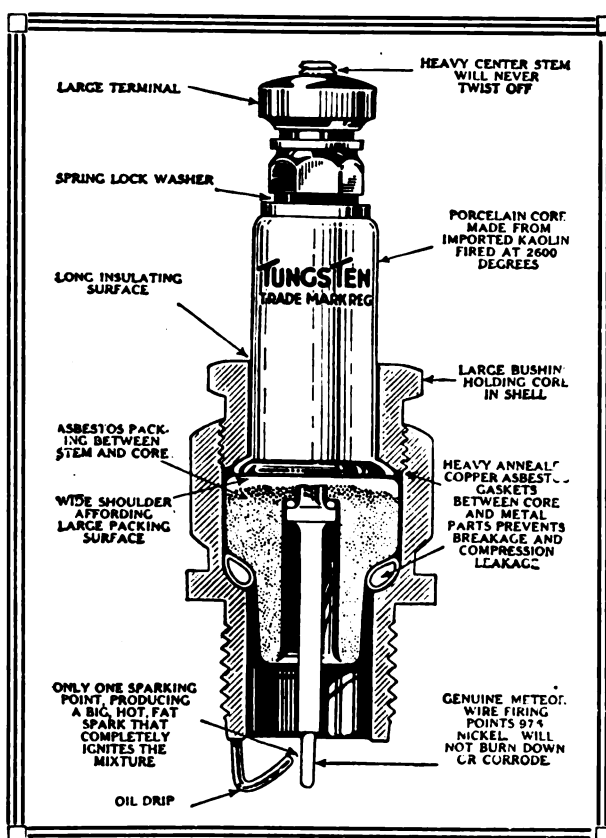


TUNGSTEN

TRADE MARK REGISTERED

SPARK PLUG

Always on the job



GOOD ALL THE WAY THRU

Notice the perfection of detail—the heavy rugged construction—the absence of freak features.

Tungstens will increase your spark plug business.

Just show them—they speak for themselves.

Tungsten Mfg. Company Marshalltown, Iowa



LET THE GAS MAN LOAF



Make fuel stops few and far between. Stretch mileage and shorten gas costs with The New

Stromberg Carburetor FOR FORDS

It "does it." We "show you" with figures on your speedometer. We turn our claims into solid cash savings for you. We give you *tangible* evidence—*indisputable* evidence of its tremendous value to you. The New Stromberg is sold on

A Ten Day Free Trial

If it doesn't live up to our assertions—if you are not satisfied with results—if you don't obtain a substantial mileage increase—more speed—better acceleration—easier starting than you've ever before secured from your Ford—purchase price will be refunded and trial costs you nothing.

37⁴/₁₀ Miles on a Gallon of Gasoline

—in an official test—by a Model T 1915 Stromberg-equipped Ford—carrying three passengers and weighing 2,170 lbs. The world's greatest Ford economy record. Same car was accelerated from standing start to 25 miles an hour in 11.4 seconds—then speeded up to 43 miles an hour—without touching the carburetor.

Those records were made under every-day conditions and can be duplicated in *every day service*. Estimate the tremendous savings—the starting ease that gets you away like a flash in coldest weather—power that pulls you over highest hills and through hardest going without a hitch—speed to answer most urgent need. Now realize these things in *results* with 10 day trial. Order at once. No risk. No obligation. Send purchase price—\$18—merely as a deposit. Make up your mind in 10 days whether you want to keep the New Stromberg or want your money back. A proposition so *safe*—so vitally important to economy and car efficiency—you can't afford to miss it.

Descriptive matter **free** upon request

STROMBERG MOTOR DEVICES CO.

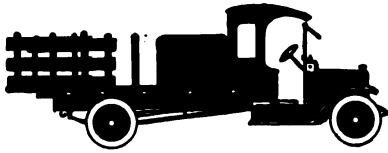
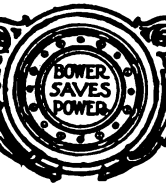
Dept. 628

64 East 25th Street

CHICAGO

New **STROMBERG** Does it! CARBURETOR

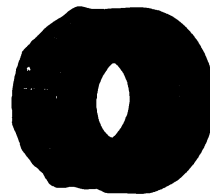
When writing advertisers please mention Motor World—It identifies you



For Motor Truck or Pleasure Car

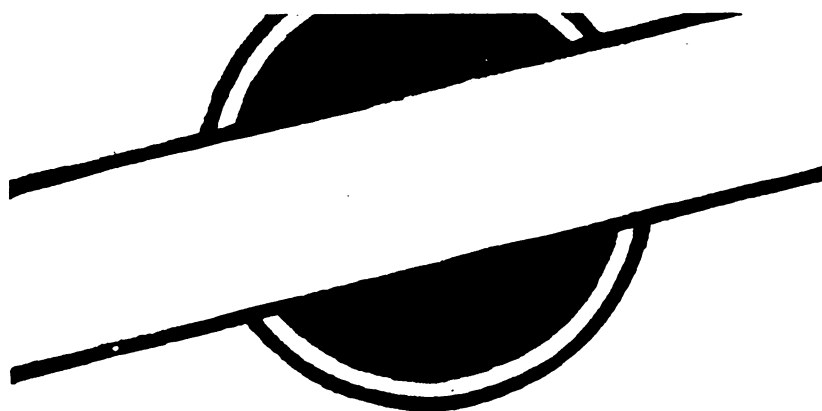
The same reason that makes Bower Bearings the big conservers of power in heavy trucking serves also to make them the logical bearings for pleasure cars.

The rollers in Bower Bearings have a maximum of line contact for vertical load. They are self-aligning and never need adjustment. Then, the flanged head has a separate surface for end-thrust action. Thus, wherever speed, power, endurance and stability are factors, Bower Bearings become an all-important unit of the construction.



BOWER

ROLLER BEARING CO.
Detroit Michigan



This company's
**distributors' proposition is
attractive enough to in-
terest the largest and most
important distributors in
the country. Demon-
strated merchandising
ability and solid financial
backing are two require-
ments.**

See announcement next week

For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.



Why 35 Head of Horses will be Replaced by

ARMLEDER MOTOR TRUCKS

In the Service of the Schwalb Coal Company



A letter from the Schwalb Coal Company, Rochester, N. Y., to the O. Armleder Company:

Gentlemen:—

We have at present four Armleder trucks in service. Two of these trucks we have had about one year. They have not lost a minute since the day they were put into service. The average mileage per day is about 35 miles. The consumption of gasoline is surprising in comparison with other trucks we have working alongside of us every day. We average $5\frac{1}{2}$ miles on a gallon of gasoline with our $3\frac{1}{2}$ ton truck, which carries $1\frac{1}{2}$ tons overload daily.

Our two ton Armleder trucks are not loaded above their capacity and give us $9\frac{1}{2}$ miles per gallon. You understand these motors are started at 6:30 in the morning and run constantly all day with the exception of the driver's lunch hour. The reason for this is that they are equipped with a special hydraulic hoist which is in operation when the truck is standing still.

The $3\frac{1}{2}$ ton truck takes the place of three

teams. We have experienced a hard winter, with more snow than we have had for some years, but these trucks did not miss one load in all the bad weather.

We are so well pleased with Armleder trucks that we are disposing of 35 head of horses, and in the near future our coal will be handled by trucks exclusively.

The main reason for this is that the cost on an average is about 52 cents per ton delivered by horses, and our trucks have not exceeded 32 cents. We are pleased to state again that we are very well satisfied with our Armleder trucks and do not honestly think there is any other make on the market to-day that can compete with it.

Very truly yours,

The Schwalb Coal Company,
92 Portland Avenue.

Henry J. Schwalb, Sec'y.

1918
Type



Salient
Six

The Car With The Versatile Engine

Recognized as the most advanced engineering achievement in present day automobile design.

An engine which is an effectual combatant of the low-grade gasoline available today.

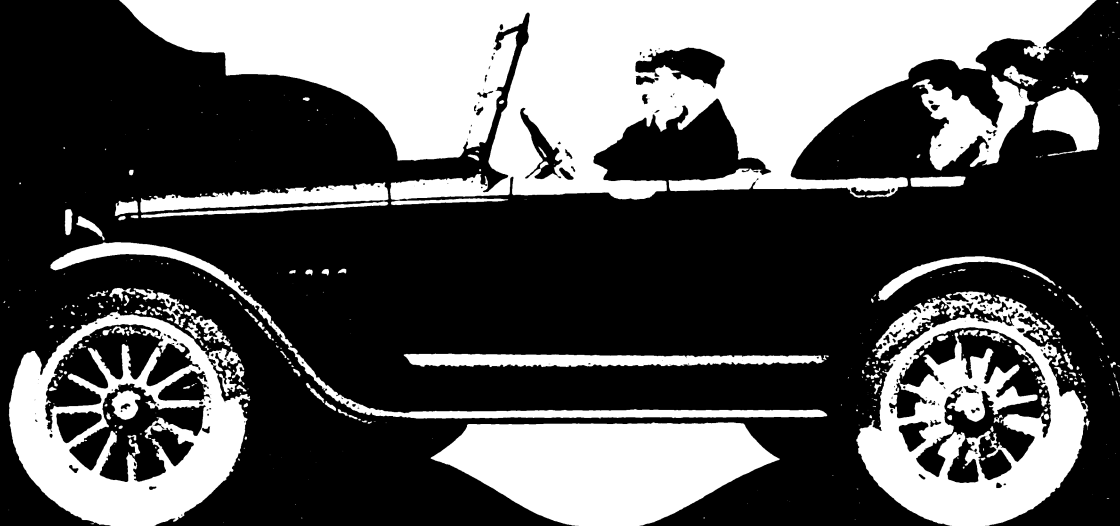
Piece by piece the greatest of six-cylinder engines, embodying the most approved features of leading types with an evident superiority in the design of the gas intaking system which obviates the prime objection to present types, namely, inability to burn *all* the gasoline.

This advanced engine in a chassis whose components are produced by the leading parts makers of the country. Mere mention of such names as Stromberg, Delco, Willard, Van Sicklen and Gemmer should convince you.

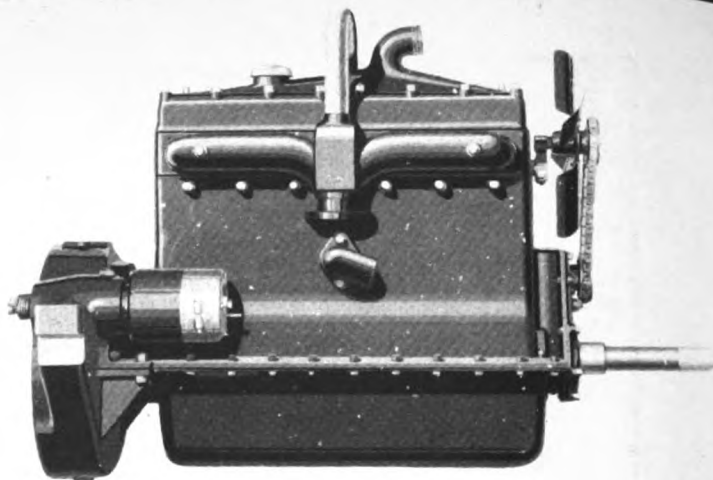
And on the chassis a body which is deep-seated, roomy, and conservatively distinctive.

The Stephens Salient Six car and its dealers are allied with a company of a fifty-two years manufacturing experience and \$19,000,000 paid-up capital.

STEPHENS MOTOR BRANCH
OF MOLINE PLOW CO.
MOLINE, ILL.



Intake manifold in center
of cylinder head sur-
rounded by heat



Perfected Overhead Burns All

AN antidote for the present-day low-grade gasoline. A year or possibly even six months from today, fuel for motor car use will be of even lower grade than now. It will be a mixture of gasoline, kerosene and possibly even heavier distillates.

The Stephens Salient Six engine will burn *all* of the gasoline of today and will burn *all* of the poorer grade fuel of six months or a year from today.

The intake manifold of the Stephens Salient Six engine is in the center of the cylinder head. It is surrounded by heat.

Gas is admitted to this manifold from a Stromberg carburetor which is bolted to side of the cylinder head. Gas travels the least possible distance before it gets into constant heat which means perfect carburetion.

When the gas enters the manifold it is thrown violently against a "hot spot" which is a thin sheet of cast iron brought to high temperature by the exhaust gases. The hot spot superheats the gas and further breaks it up before it passes on to the valves.

The intake manifold is bored smooth throughout its length. There are no rough edges to liquify the gas. It goes into the cylinders—all of it.

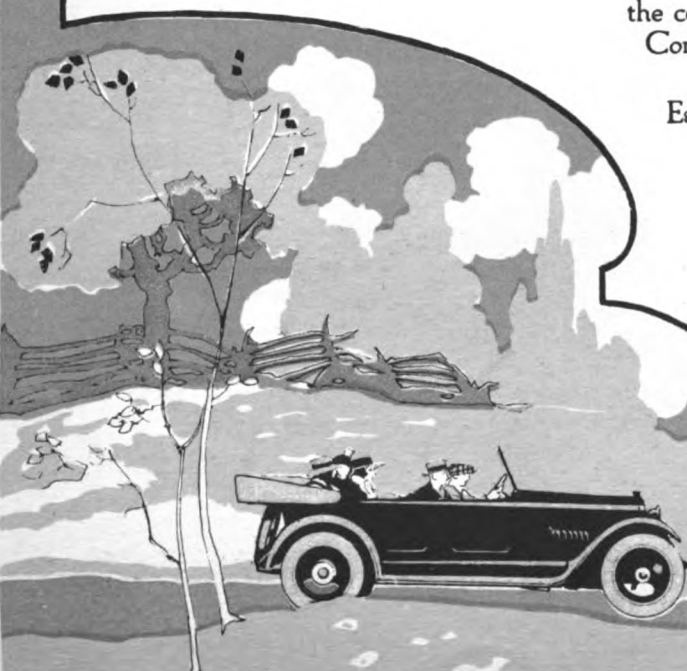
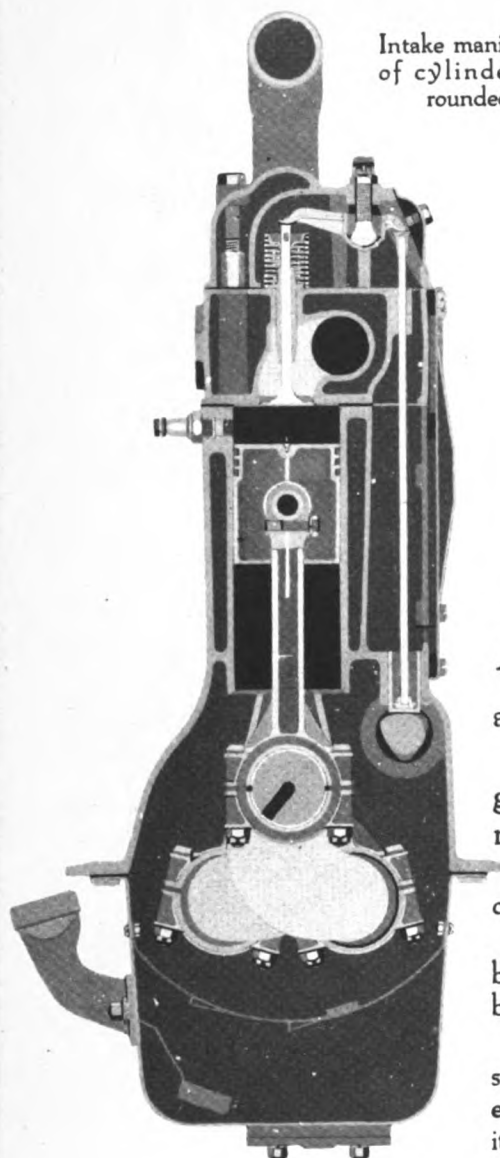
Yet, two other features. The longest distance the gas has to travel from the center of the manifold to the farthest valve is ten and one-half inches. Compare this figure with that of any other six with similar cylinder size.

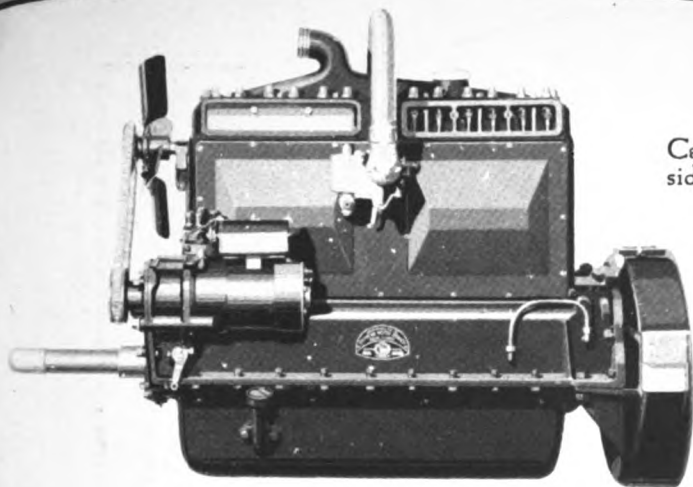
And finally, the valves are one and five-eighths inches in diameter. Each valve has approximately one-quarter the area of the cylinder bore.

IT BURNS ALL THE GASOLINE.

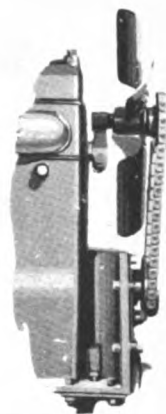
STEPHENS MOTOR BRANCH

Factory :
FREEPORT, ILL.





Carburetor bolted to the side of cylinder head



Only three visible moving parts on the entire engine

Valve Engine That the Gasoline

THE Stephens Salient Six engine has a $3\frac{1}{4}$ -inch bore and a $4\frac{1}{2}$ -inch stroke, developing fifty-seven horse-power. This great power is derived from *all* the gasoline which passes through the carburetor. One can throttle the car to two miles an hour, then step on the accelerator and soar to a smooth sixty without a choke or miss in the engine. This is a test against which we invite competition. There is no "lagging" in the gas charge to starve the engine.

Another power factor is the overhead valve system which we believe to be the finest yet devised. Valve adjustment is a matter of a moment's work with a screw driver while engine is running, and the adjusting screws are on top of the engine within easy reach.

There are two valve springs instead of one. These springs are of different size. The result is that one spring checks the other with a shock-absorbing effect. Quick action without noise.

There are only three visible moving parts on the entire engine---the two fan pulleys and the belt. This complete enclosure makes the Stephens Salient Six a silent overhead valve engine.

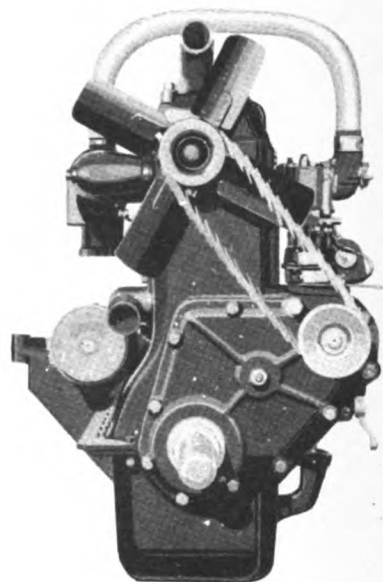
The crankshaft is in running balance, meaning that vibration is overcome and that in conjunction with the efficient gas administering and exiting feature, the engine is capable of extreme high speed.

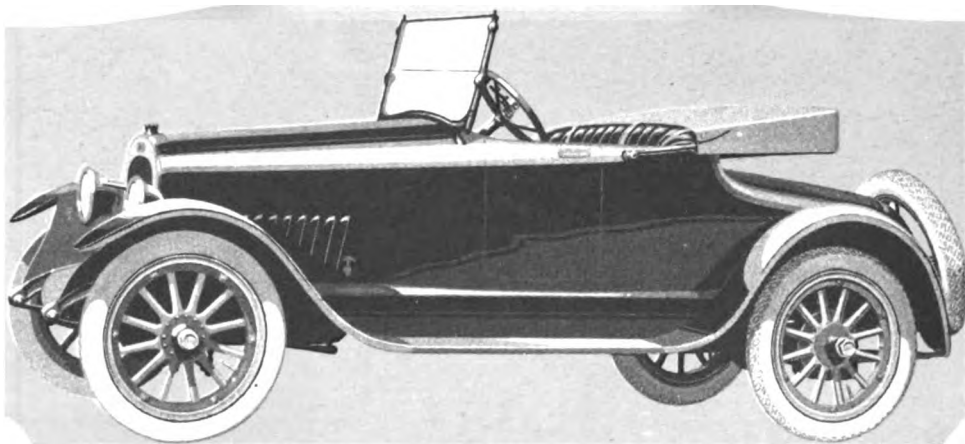
The most positive type of lubrication, full force feed, is embodied in a trouble-proof oiling system which includes a pressure gauge on the dash.

IT BURNS ALL THE GASOLINE.

OF MOLINE PLOW CO.

Sales Office:
MOLINE, ILL.





Two Striking Body Types

A TOURING CAR with swift, graceful lines. Five-passenger comfort suspended on sensitive springs. The seats are deep set in the body and luxuriously sprung. A three-passenger roadster. Three large people may be seated on the one sociable cushion.

Both types have deep, soft, French-piped Turkish upholstery. Both have ventilating, rain-vision windshield. Both have Van-Sicklen speedometer and Kellogg tire pump driven from transmission. Both have electric motor-driven horn with push button on top of the steering column.

The wheelbase of both models is 118 inches and the price. \$1385 Freeport, Illinois.

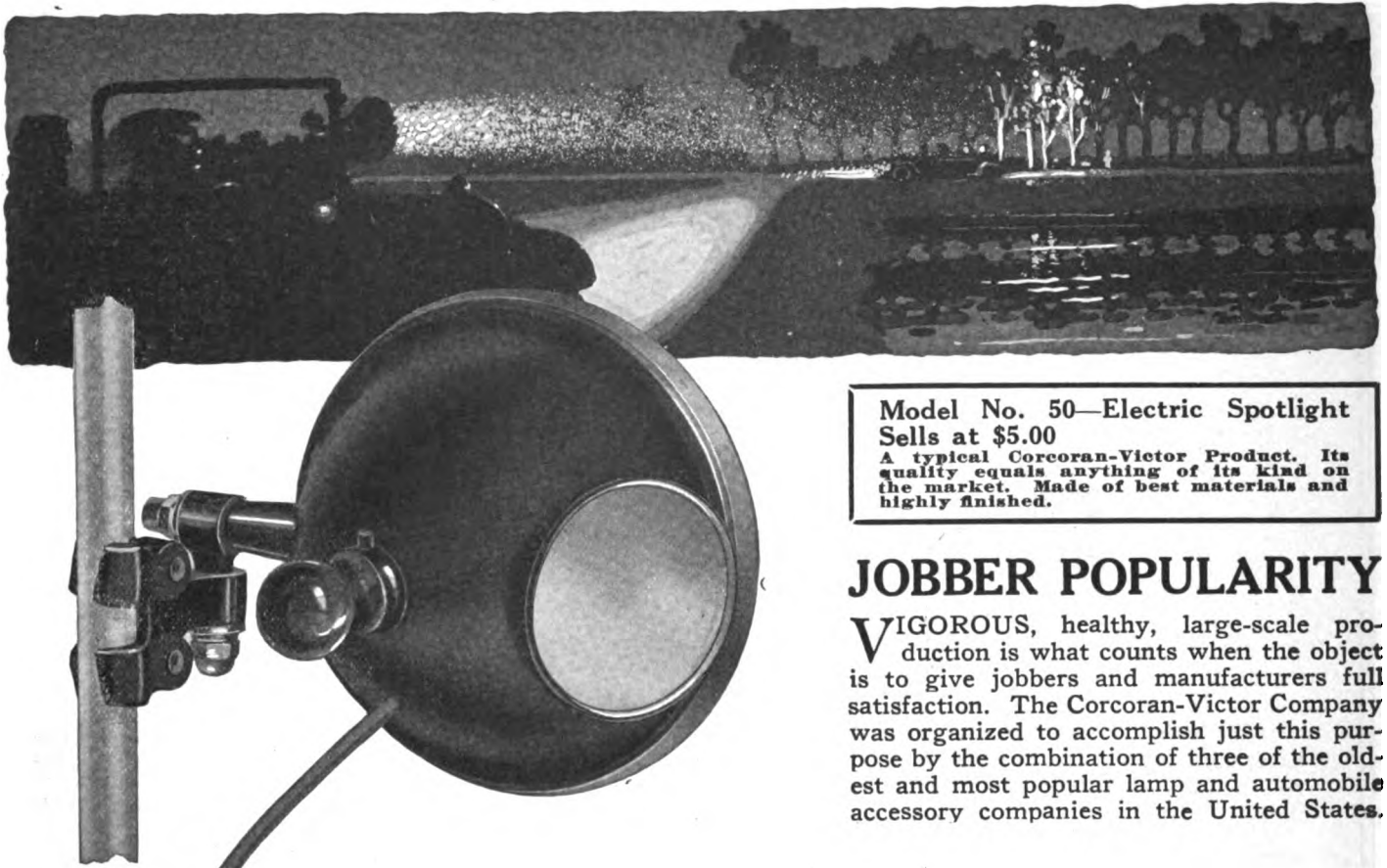
DEALERS—There is a most attractive proposition for you.

This type is a superior of a successful predecessor. It is manufactured by a company which has lived and progressed for half a century on the merits of its products.

THERE IS GOOD TERRITORY OPEN.

STEPHENS MOTOR BRANCH
OF MOLINE PLOW CO.
MOLINE, ILL.





**Model No. 50—Electric Spotlight
Sells at \$5.00**

A typical Corcoran-Victor Product. Its quality equals anything of its kind on the market. Made of best materials and highly finished.

JOBBER POPULARITY

VIGOROUS, healthy, large-scale production is what counts when the object is to give jobbers and manufacturers full satisfaction. The Corcoran-Victor Company was organized to accomplish just this purpose by the combination of three of the oldest and most popular lamp and automobile accessory companies in the United States.

VICTOR LAMPS

IT intends to give jobbers a service in lamps and tool boxes never before equalled **EITHER IN THE COMPLETENESS OF THE LINE**—permitting the jobber to get everything he needs with minimum trouble from one company—or in the quality and reputation of the goods themselves and the extreme moderateness of their price.

BY THUS OFFERING THE JOBBER A QUALITY, A PRICE, AND A SERVICE THAT DEFIES COMPETITION, we hope to develop the Corcoran-Victor line to a greater extent than ever before—to become, in fact, the jobber line of our branch of the automobile industry.

CORCORAN-VICTOR COMPANY

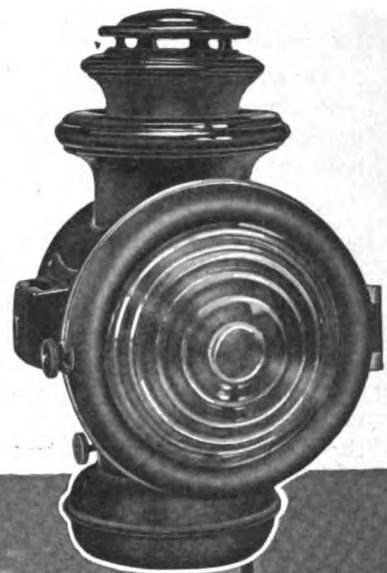
Everything a Jobber needs to carry
CINCINNATI OHIO

Tool and Battery Boxes

The Corcoran-Victor Company, in addition to lamps, sells a complete line of tool and battery boxes of all sizes, to suit all cars. Prices range from \$2.35 to \$3.80.

**Model No. 79
—Truck Oil
Sidelamps
sell at \$10 a
pair**

Finished all black. Suitable for pleasure cars, but of especially strong construction.
Guaranteed to burn.



When writing advertisers please mention Motor World—It identifies you

**No Glare
No Dimmers**

**No Laws
Forbid**



On city streets your full light without dimmers, without glare

**No Dark
Roadsides**

**No Hidden
Turns**

The Drivers' Side Of the Warner-Lenz

All Motordom has been amazed at the Warner-Lenz success. There has never been anything like it—so quick, so widespread—in the annals of this line.

But one hour's ride with the Warner-Lenz will prove their appeal resistless. For ten times their cost one would never go back to any old-type lens.

The Major Reasons

The Warner-Lenz light is legal anywhere without the use of dimmers.

On open roads—where traffic laws don't reach yet—this glareless light is even more important. Every driver knows how glare-lights blind.

The Warner-Lenz is 176 lenses in one. So the light is diffused, and the rays are thrown in every forward direction.

They light the road from 300 to 500 feet ahead. They light the roadsides, near and far. They light the turns. And their light—as soft

as moonlight—makes things as clear as day. All the dark places which shaft-lights miss are flooded by an all-revealing light.

No Limitations

There are other ways of ending glare, but they also limit light. The Warner-Lenz seems to multiply the light.

There are no restrictions. Up and down, far and near, close and wide, everything is lighted.

And the light is the same in any position.

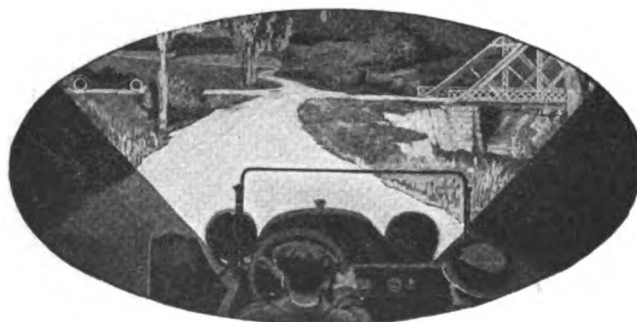
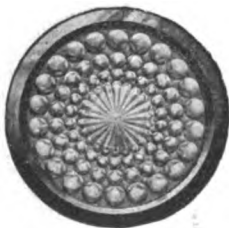
Turning of the lens in the door of the headlamp does not affect it, nor does rise and fall of the car. That is vitally important.

No more blinded drivers. No more hidden ruts and turns. No more tense night driving. Think of all these gains for the life of a car, from \$3.50 to \$5.

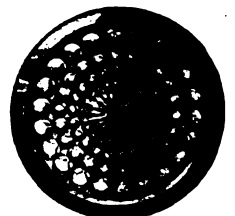
That is why motorists by the hundreds of thousands are adopting the Warner-Lenz.

Standard Equipment On These 17 Cars

PACKARD	BIDDLE
MARMON	HAL TWELVE
STUTZ	SINGER
WHITE	McFARLAN
PEERLESS	OHIO ELECTRIC
FIAT	DANIELS 8
FACEOL	PATHFINDER
LENEX	DOBLE STEAM
	CUNNINGHAM



One's whole angle of vision is lighted like day



**In One
Year
400,000
Users**



**In One
Year
17 Makers
Adopt Them**

It lights the road you travel, and the road you turn on, too

The Dealers' Side Of the Warner-Lenz

In the first year of the Warner-Lenz, 400,000 motorists adopted it. And those 400,000 cars, on every road, are urging this lens on others.

Every month, on the average, 65,000 other cars adopt it.

Already, 17 car makers—named on previous page—have made Warner-Lenz standard equipment. And all their new models advertise this ideal form of light.

The Warner-Lenz is the largest-advertised motor car accessory. About 7 million ads per month go out to picture and to argue its results. We spend in magazines this year \$200,000.

There are millions of cars which still need this equipment. Faster and faster, they are bound to adopt it.

It requires from dealers little room, small investment, no after service. We supply window displays and local ads.

No other accessory today offers you a like opportunity.

But the demand is for the Warner-Lenz, with the name stamped in the edge. It is not for any of the 60 substitutes.

Write us for our dealer proposition, or send to your jobber.

WARNER-LENZ

*This is A. P. Warner, of the Warner Auto-Meter Fame,
and Inventor of the Magnetic Speedometer*

THE WARNER-LENZ COMPANY

907 South Michigan Avenue, Chicago



At a hill crest, where shaft lights shoot upward, it lights the whole downgrade

When writing advertisers please mention Motor World—It identifies you

STANDARD WOVEN FABRIC CO.**WALPOLE****MASSACHUSETTS***Office of the President*

We beg to advise you that the United States government requirements will have precedence over all orders in this plant.

We have recently installed a large amount of new machinery. We shall arrange to turn over to government work such of this equipment as is necessary to take care of the demands for brake lining, clutch rings, Stanwal Anti-squeak, friction tapes, splicing compounds, etc.

A great deal of our equipment is on this class of work already and every order heretofore or hereafter accepted, whether government or otherwise, will be promptly cared for.

We have a large quantity of crude material in hand with sufficient equipment to give orders of this nature immediate dispatch and prompt delivery. As we card and spin our own yarns, we have complete command of our product, thereby avoiding delays of every nature.

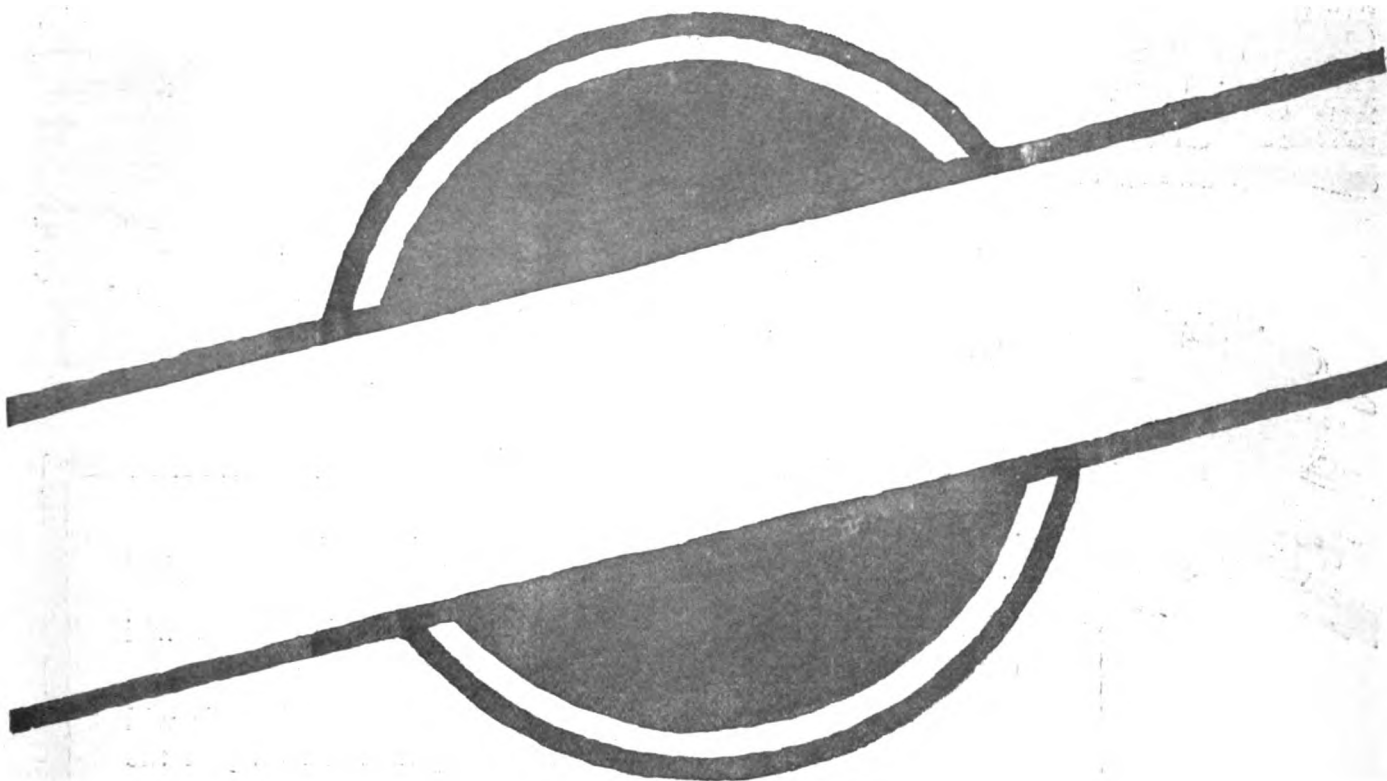
Our selling staff is distributed in sections of the country where they can be quickly reached. If you have any specifications for this class of material, wire us, and we will have our representative at your plant inside of twenty-four hours.

We make special prices on all *bona fide* government orders to automobile, truck, and motorcycle manufacturers.

Yours very truly,

Stoughton Bee
President

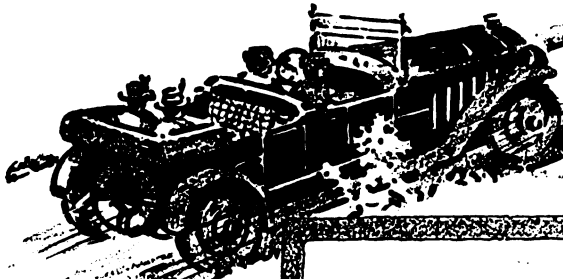
June 4, 1917



A one-ton truck
to supplement its
passenger car—both
selling below \$800
—is a feature which makes this
company's dealerships and
distributorships unusually
attractive.

See announcement next week

For advance information wire or write MOTOR AGE,
95 West Fort St., Detroit, Michigan. Inquiries marked
"Confidential" will be answered direct by MOTOR AGE
and so treated.



Your Motor Trip This Summer

The pleasure you derive from your motor trip this summer will depend very largely upon the way your car behaves.

If the car is up to par neither bad weather nor bad roads will wholly discourage you. But if the car goes back on you the trip is spoiled.

Lubricating troubles are common on such trips—due to the purchase of strange oils in strange places.

You *can* avoid lubricating troubles—and this is how: Become acquainted now with

TEXACO MOTOR OIL

Then ask for it and insist upon getting it wherever you go. Texaco Motor Oil is always the same. You can always depend upon it. And there are hundreds of good garages throughout New England that carry it in stock.

Texaco Motor Oil lubricates perfectly. It reduces friction to a minimum. It stands up well in use, retains its original lubricating qualities, because it prevents the leakage of gasoline into the crank case. Due to certain basic qualities it cannot deposit a hard carbon crust. It is the oil for *results*.

When you buy motor oil buy Texaco. The best way, the safest way, to buy is in one or five gallon cans. You can identify Texaco by its clear, clean color.



THE TEXAS COMPANY
New York Chicago Houston
Distributing Offices in Most Cities



When writing advertisers please mention Motor World—It identifies you

Willard STORAGE BATTERY

"Don't Lay Up Your Car"

That's what you can tell your customers right now.

If they'll bring their batteries to me when in need of repairs or recharging, I won't hold up the car a minute longer than it takes me to remove the battery and replace it with another.

Stop a minute and let that sink in.

Whatever the make or model of car, I've rental batteries for your customers' use while theirs is being fixed.

Where else can you find this nation-wide service available at 900 Service Stations?

What battery manufacturer, except Willard, could have made such a service possible?

What other necessary part of the car can your customers have repaired—and have full use of their cars at the same time?

This is one of the "Service-plus" features that I have to offer—big convenience added to conscientious, expert handling of car-owners' needs by men trained for the job.

And they get this unique service—which keeps their cars in commission—at the nominal charge of 25c a day.

The Willard Service Station Man.

RENTAL BATTERIES

for all makes of cars at all Willard Service Stations



When writing advertisers please mention Motor World—It identifies you

GRANT SIX

Five-Passenger Touring
Car or Three-Passenger
Roadster

\$875

f. o. b. Cleveland

The Car With a Steady Market

THE demand for the GRANT SIX has never been stimulated by hysterical advertising or high pressure sales methods. The GRANT SIX market is not a market that can vanish overnight.

On the other hand the demand for the GRANT SIX is based upon VALUE in the car itself.

The GRANT SIX dealer offers a car that welcomes the most critical and minute comparison both of the car itself and of its performance.

It is the most economical six as proved by the average of 20 miles or more to a gallon of gasoline and 900 miles to a gallon of oil.

The GRANT SIX overhead-valve engine is considerably higher both in rating and in brake horse power than that of any other six in the same price class.

In many other details such as full-floating rear axle, vacuum feed, springs, etc., and in body lines and finish the GRANT SIX follows the standards of cars costing several hundred dollars more.

Almost without exception the GRANT SIX outsells cars of its price class, wherever it is represented.

The 1917 Production is 20,000 Cars

GRANT MOTOR CAR CORPORATION, CLEVELAND

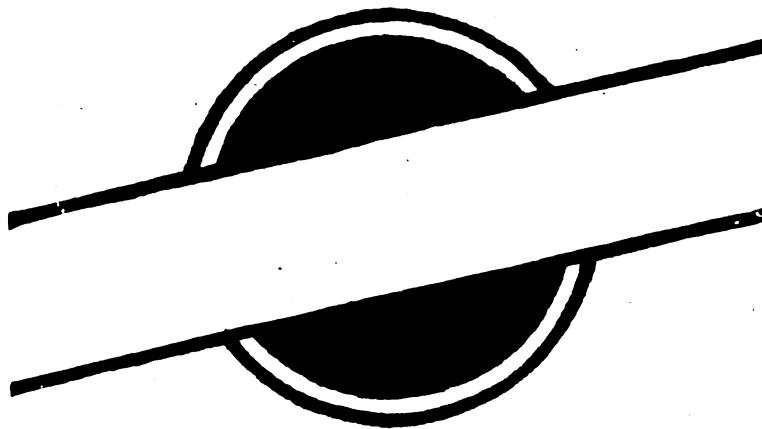


When writing advertisers please mention Motor World—It identifies you

This manufacturer

has always recognized the important status of its dealers. Meeting the dealers' increased cost of doing business by increasing its dealer discount, was no more than appreciation of the fact that dealer loyalty and goodwill is a company asset.

See announcement next week



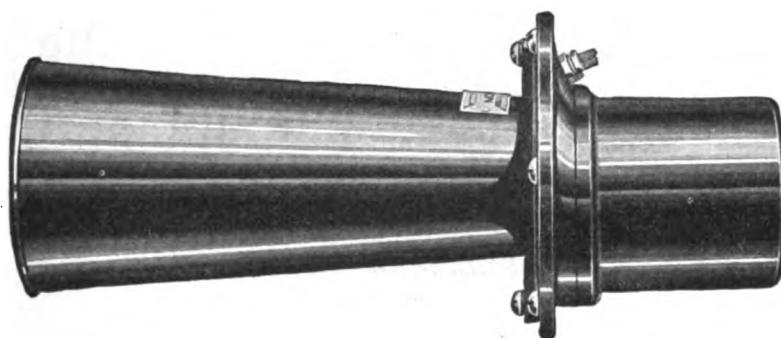
For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.

SPARTON PRODUCTS

First Choice of America's Best Cars



SAFETY
FIRST
SOUND
SPARTON



From a Whisper to a Whoop!

Country or city, day or night, the Sparton Motorhorn provides an adequate and appropriate warning signal.

Its voice may be modulated from the far-flung "Ya-hoo-ta" needed on the winding country road, to the courteous "Passage, please" of the city street crossing.

Forty-two leading motor car manufacturers use the Sparton as standard equipment.

The Sparton Gasoline Vacuum System defeats gravity and automatically feeds gasoline to the carburetor to meet any demand. In one test it raised gasoline 22½ feet; in another it delivered a steady, even supply of gasoline to a motor with 442 cubic inches displacement while running a car at 68 miles an hour.

We assure manufacturers of prompt deliveries.

THE SPARKS-WITHINGTON COMPANY

JACKSON, MICH., U. S. A.

Motorhorns

Gasoline Vacuum Systems

Radiators

Radiator Fans



(60)

When writing advertisers please mention Motor World—It identifies you



Great Battleship Turrets
revolve swiftly and silently
on Standard Bearings



SRB

**Sturdy
Reliable
Bearings**

**MAXIMUM SILENT
ANNULAR
BALL BEARINGS**

The movement of battleship gun turrets is only one of the many exacting purposes for which S R B Bearings are used.

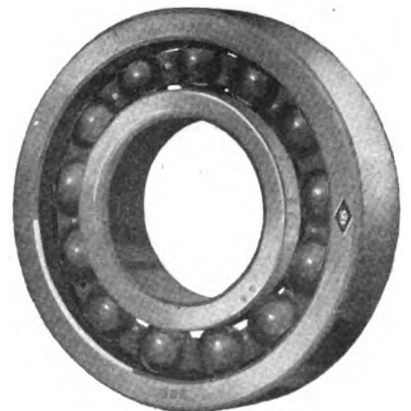
S R B Bearings are designed to meet every requirement, large or small. Let our Engineering Department help you select the type that will give you the greatest efficiency.

Dealers in cities where we have no representative will find our agency proposition very interesting.

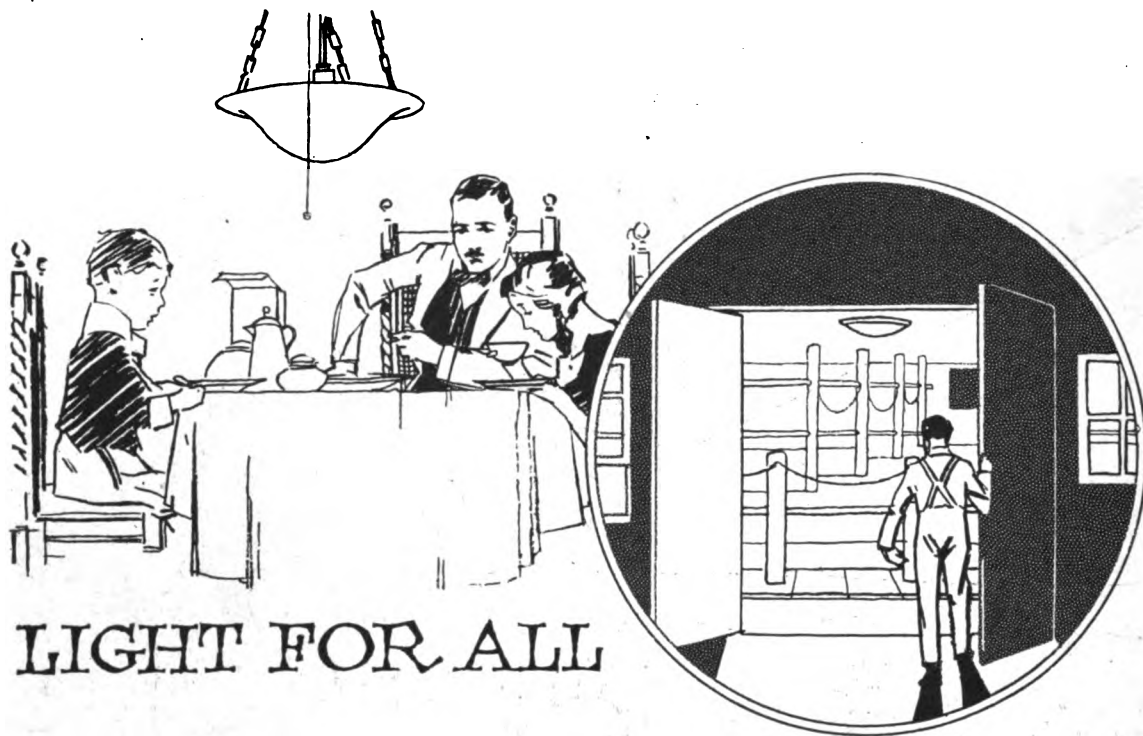
Makers of S R B Annular Ball Bearings, Ball Thrust Bearings, Taper Roller Bearings, Steel Balls and Rudge-Whitworth Wire Wheels.

Standard Roller Bearing Co.

PHILADELPHIA, PA., U. S. A.



When writing advertisers please mention Motor World—It identifies you



LIGHT FOR ALL

WHAT greater convenience is there than cheap electric current! Especially is electricity a convenience in country districts where the uses to which current can be put are more than doubled.

It is just these places, however, where electricity is most useful that it is most difficult to obtain and most expensive to buy.

The Genco-Light Light and Power Plant is an engineering triumph which puts the benefits of cheap current within reach of all.

It is just the thing for lighting or supplying power for farms, country homes, churches, bungalows, stores, work shops and garages.

It consists of a self-starting gasoline engine practically noiseless and vibrationless, coupled direct to a generator which feeds a 16-cell storage battery.

The plant is complete and, except for a few connections, wired for immediate use.

The engine shaft coupling carries a pulley that will furnish 2 H.P. to drive machinery.

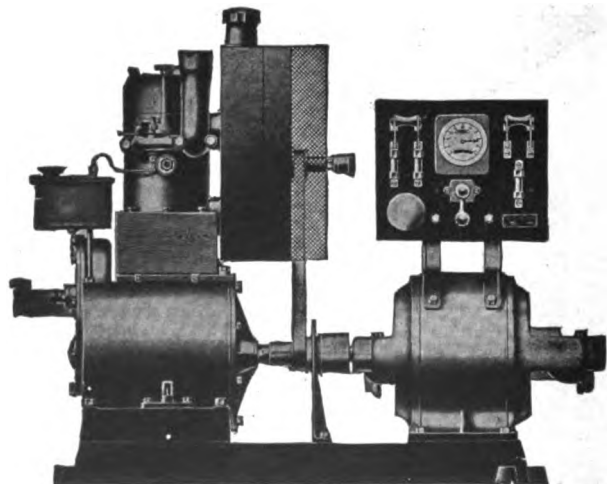
GENCO-LIGHT Light & Power Plant for FARM & HOME

In addition to lighting it can be used to operate electric flatirons, a vacuum cleaner, a washing machine and any number of other household labor savers—to say nothing of innumerable uses about a farm and workshop.

WE WANT DISTRIBUTORS

Our selling and distributing plan offers you an unusual opportunity to make big money. Write for it today. Your territory may still be open.

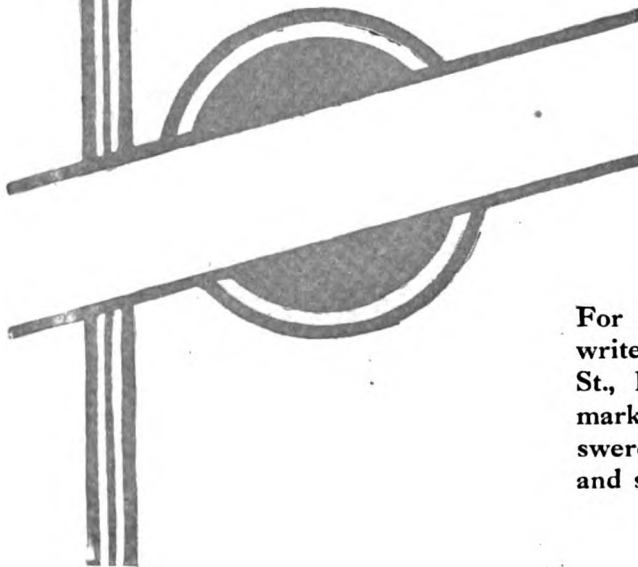
General Gas Electric Co.
Hanover, Pa., U. S. A.



In the East—

the New England and North Atlantic States—there will be open for the first time to big distributors, several of the most fertile selling fields for these well-known cars and one-ton trucks. This territory will be allotted with discrimination and care. Applicants must qualify.

See announcement next week



For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.



Scripps-Booth Thrift A Timely Selling Appeal

War conditions are not going to halt the buying of motor cars. Their utility is too firmly established in the public mind.

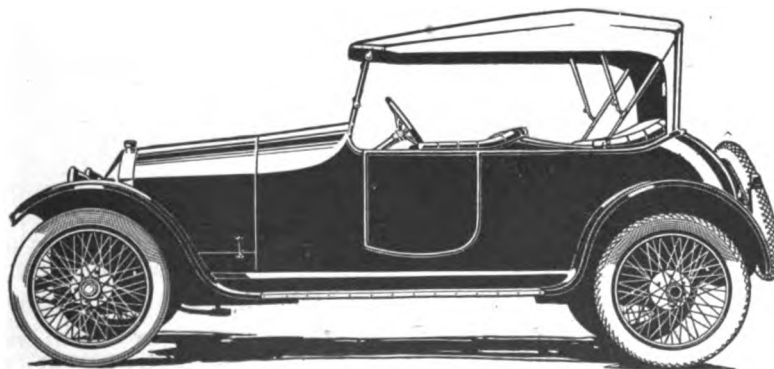
But it is going to have the effect of more discriminating selection. People are going to analyze values and thrift features more closely than ever.

Scripps-Booth, blending luxury with light weight and low cost—still standing alone as the one car that combines the human desire for luxury with the timely need for thrift—meets the new merchandising conditions ideally.

Write us about the 50 selling improvements on the bigger, roomier, more powerful new Scripps-Booth roadster.

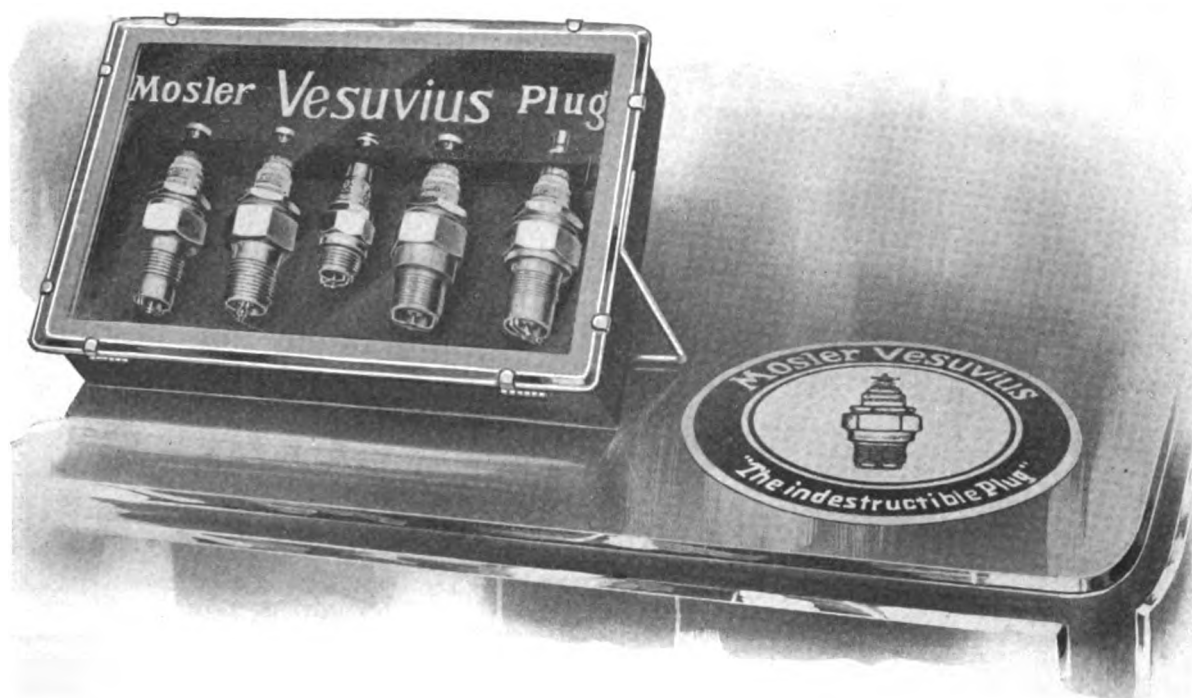
Four-Cylinder Roadster.....\$ 935
Eight-Cylinder Four Passenger. 1285
Eight-Cylinder Town Car..... 2575

Scripps-Booth Corporation
Detroit, Mich.



When writing advertisers please mention Motor World—It identifies you

17 Years of Leadership in Spark Plug Manufacture



Where the Money Comes In —And Your Fair Share of It Stays With You

DEALERS get their fair share of Mosler profits. No need to sell at murderous cut rates. They have *quality* plugs to sell, and the public knows it.

FREE

"Mosler on Spark Plugs" which we send on request, contains sizes of all cars, trucks, etc., ever made. It is the authority on this subject and of great value to Dealers.

MOSLER VESUVIUS PLUG

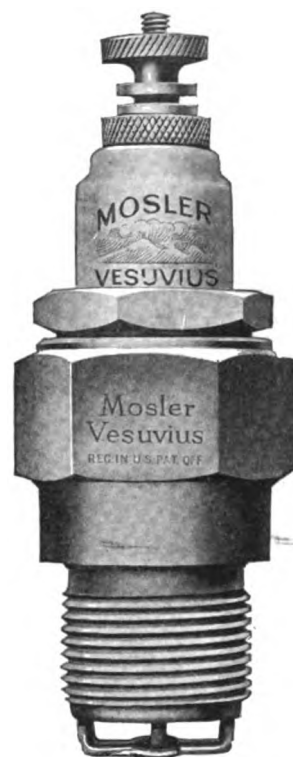
The motorist will pay his full dollar for a VESUVIUS Plug because he is sure of getting a dollars' worth. He knows the Mosler name and reputation—the oldest in the trade.

He knows the VESUVIUS is guaranteed to outlast the motor and by a real, whole-souled, fully backed guarantee.

You can get delivery within 24 hours on any Mosler Plug.

Display matter of all sorts is at your command. Link up our advertising with your store by using it.

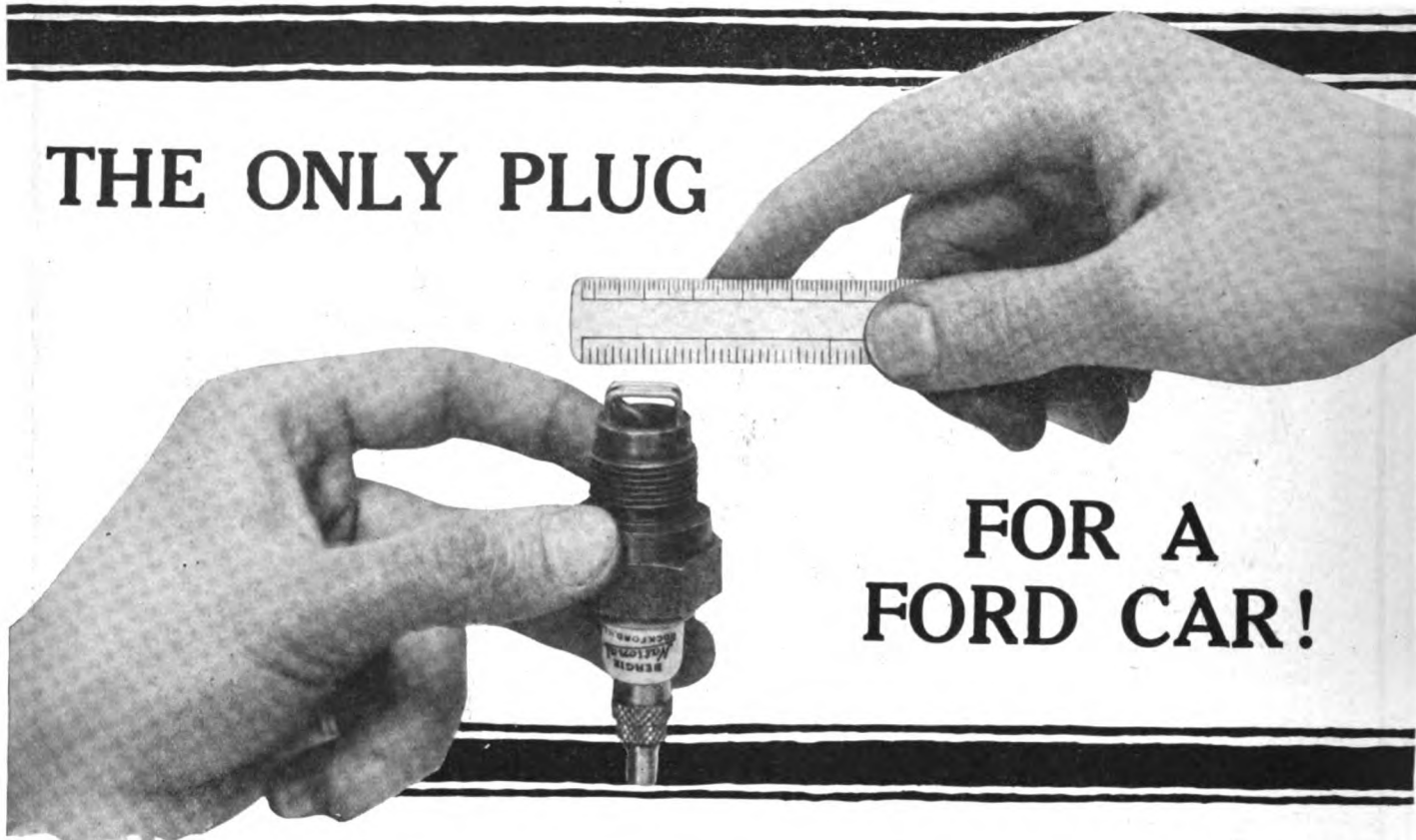
A. R. MOSLER & CO.
NEW YORK CITY



Manufactured under A. R. Mosler's Patent No. 1,218,298, March 6, 1917. Other Patents Pending.

— THE INDESTRUCTIBLE PLUG GUARANTEED TO OUTLAST THE MOTOR

THE ONLY PLUG



FOR A FORD CAR!

The shower of **FAT, HOT SPARKS** produced by the patented **ONE INCH FIRING SURFACE** insures

*Greater Power,
Less Fuel Wastage,
Quicker Acceleration,*



*More Flexibility,
Less Carbon and
10% to 20% more Mileage*

than any **POINT FIRING** Spark Plug on the market.

Ford owners will quickly prove that the volume of hot sparks emanating from the **ONE INCH FIRING SURFACE** produces deep-throated explosions, complete combustion and more power. As "Power-Boosters" Bergie Nationals cannot be equaled.

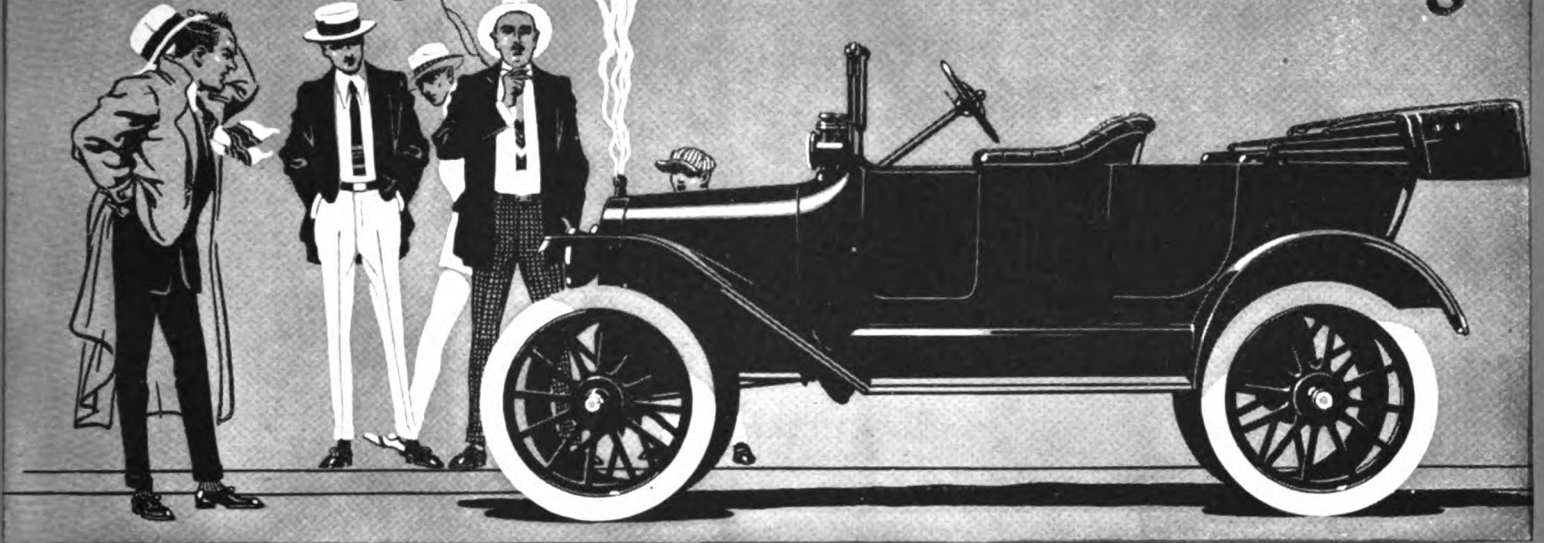
Every plug is guaranteed for 365 days of positive ignition service and all defective plugs are replaced immediately—**MINUS ARGUMENT.**

Price, \$1.00 Each

AN UNUSUAL PROPOSITION FOR THE DEALER

BERGIE NATIONAL SPARK PLUG COMPANY, Rockford, Ill.

We positively Guarantee to stop your FORD from "boiling"



A motor that over-heats—

- means great loss of power due to low induction.
- motor burns out.
- pistons "freeze."
- burns out lubrication.
- finally, a ruined motor.

A motor that is over-cooled—

- means excessive waste of gas.
- motor always working 'way under efficiency.
- excessive carbon in cylinders.
- great loss of power due to heat loss to water.
- ruinous to oiling system because gasoline gets down into crank case.

\$337,000 worth sold in last 60 days

Our Distributor at Kansas City says: "I anticipate selling 7500 circulators in my territory, in addition to the 2500 I have contracted for."

And so it goes all over the country, because the Perfection Water Circulator is a *necessity*.

One Ford owner writes: "You will save me from

hell sure if it will keep my "Henry" from boiling and running out of water."

A garage in Arizona writes: "There's not a Ford around this desert that doesn't boil nearly every day and we'd like to demonstrate something that will keep them cool."



Perfection Water Circulator

A remarkable test—

A Ford car, equipped with a Perfection Water Circulator, and a thermometer, was tested in a closed garage. The thermometer showed a temperature of the water in the water jackets of 190 degrees. The spark was then FULLY RETARDED and the motor run at 1200 r.p.m. for 30 MINUTES. At this point the exhaust manifold got RED HOT, which means around 1500 degrees, and no better evidence could there be that there was excessive heat being generated in the motor. But during this time, and in spite of the tremendous heat being generated, the temperature of the water dropped from 190 to 160 degrees. This was because of the increased flow of water which the Perfection Circulator produced, and which takes place just as soon as a heavy "load" is put on the motor. It wasn't a question of the Ford radiator not being large enough, but only a matter of carrying or forcing the heated water to the cooling surface fast enough.

Now ready for FORDS, and soon for all makes of thermo-syphon cooled cars



Tractor Attachment Makers say it has solved their "over-heating" troubles —

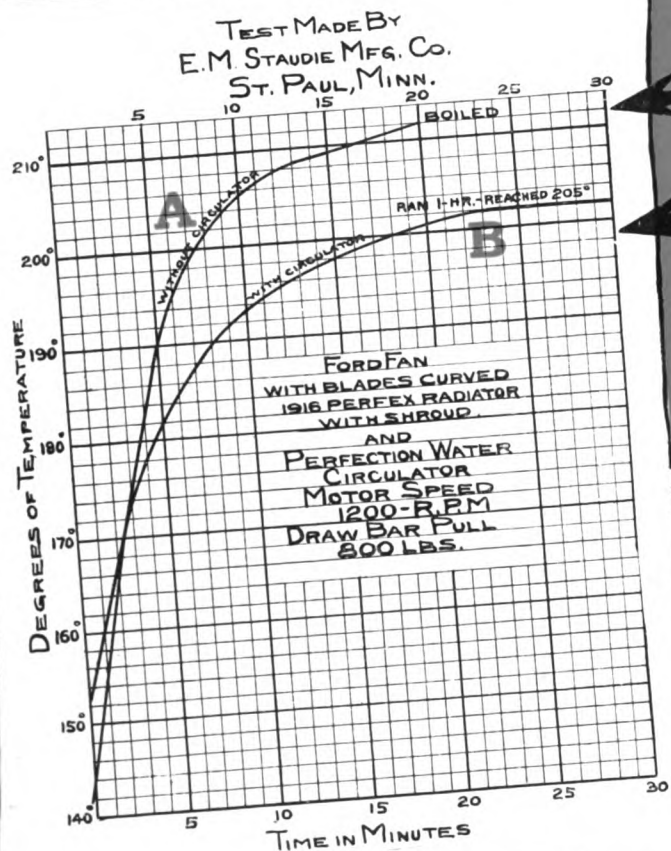
Report of Test made at Atlantic, Iowa, May, 1917

"This car is pulling two 14-inch plows, and runs all day and has been since I have been here, from the 16th to the 19th.

"We start early in the morning and plow up until

—extra radiator and special fan yet it boiled in 20 minutes.

—but when they put on the Perfection Circulator they plowed for 17 consecutive hours and it didn't boil.



9:00 o'clock at night. Since the Circulator has been installed and '.....' fan, the water has not boiled once. By taking the temperature with a thermometer directly in the water at the top of the radiator, the temperature has not exceeded 208 degrees. We do not use more than one gallon of water in the 17 hours' running, which we do every day. The temperature has been 90 degrees.

"I went down the county about 18 miles today to install a Perfection Circulator on a tractor that the owner has been raising hell about over-heating, and heard from another tractor owner that his trouble has been overcome since the Circulator was installed, so he telephoned for a Circulator to be put on his right away.

"The agent of another Tractor happened to see this test of the Staude Tractor, and tells me that unless his company furnishes the Circulator on his tractors, after he has seen what it means to the cooling, that he will throw over his contract for 5000 attachments."

Now Standard
Equipment on

Staude Mak-a-Tractor
Knickerbocker Forma-Tractor
Western Canada Auto-Tractor

Perfection Water Circulator

This is
what does
the trick



See what Truck Attachment users say:

"Our first.....Ford Truck would dangerously over-heat the engine with a light load of 1500 to 2000 lbs. even on cool days.

"When we had a Perfection Circulator put on, the change was immediate. We now regularly carry heavy loads, as the picture shows, amounting to 3000 lbs. and over even on the hottest days our engines never over-heat, they run sweet and smooth

"We also note a great saving in gasoline and lubricating oils. We now operate fifteen (15) cars, all of which are equipped with Perfection Circulators and give better satisfaction at a greatly reduced upkeep and operating cost.

"By careful test what we have accomplished and saved with the Perfection Circulators, we would not hesitate to pay Twenty-five Dollars (\$25.00) apiece for them, if we could not secure them for less."

(Signed) J. BOLGIANO & SON

Worth Ten Times Its Price

"Before using your device I was handicapped to no small degree in my express and trucking business, on account of my Ford engine over-heating; and was about to dispose of my truck when your Cooling System was brought to my attention.

"This wonderful invention has increased the efficiency of my motor fully 50%, and if I could not replace it I would not dispose of it for ten times the amount I paid for it."

(Signed) RICHARD M. PALMER

Truck Unit Makers Recommend It

"Our distributor at Indianapolis made complaint regarding the over-heating of the Ford motor recently attached to one of our truck units.

"We immediately diagnosed the case as measles and suggested that he install one of your circulators. We have recently had word from Mr.....that the case of measles has been thoroughly cured and the motor has given no further trouble from over-heating.

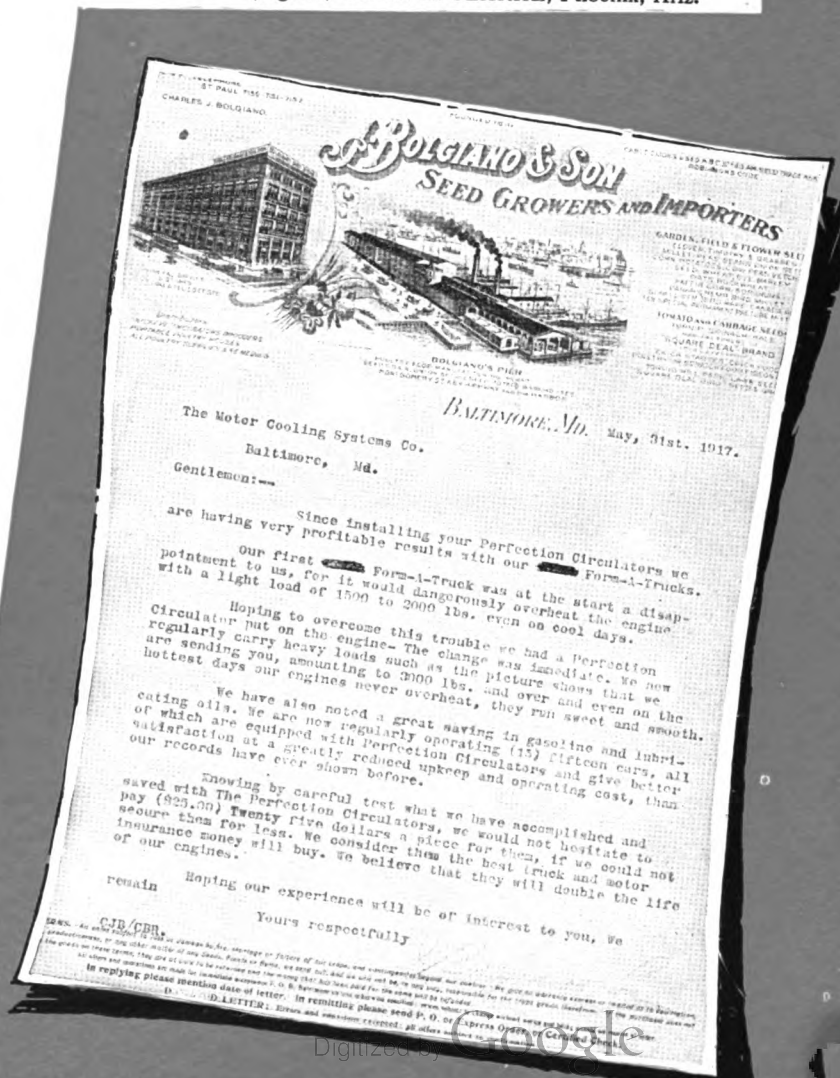
"We will be glad to recommend your Perfection Circulator to all purchasers of our truck units."

(Name on request)

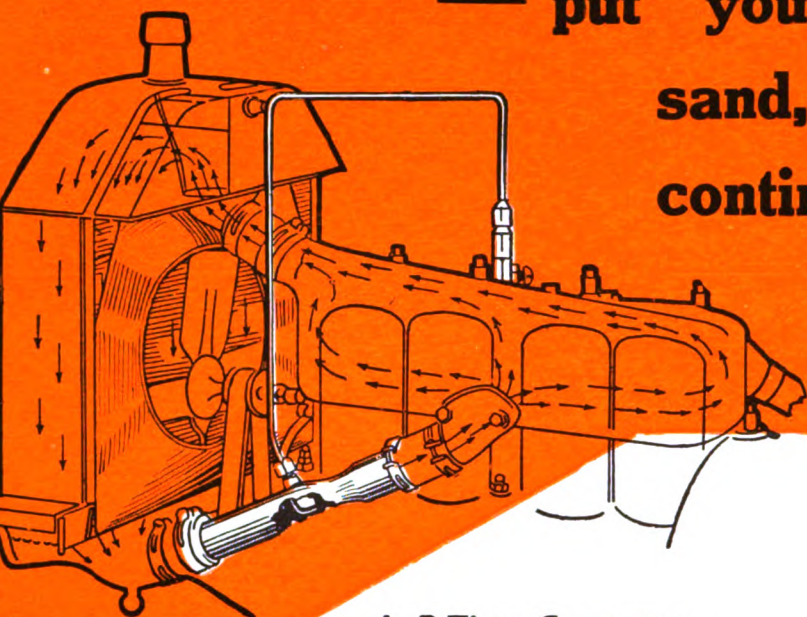
Deep Sand on Desert, Yet Keeps Engine Cool

"I have used it on all kinds of roads and in all kinds of weather, on very deep sand in the desert and on very long steep mountain climbs. It has always kept the engine cool and did not waste the water from over-heating."

(Signed) CHAS. E. CLARKE, Phoenix, Ariz.



See "Prize Contest"
on next page —



— put your **FORD** thru mud,
sand, up steep hills, or
continued running on low
gear, and still we
will **GUARANTEE** it
will not boil—

A 3-Time Guarantee

We absolutely guarantee that when properly installed, you cannot **MAKE** your Ford car boil under running conditions. Even with fan removed it won't overheat. We further absolutely guarantee a saving of gasoline. No test has ever shown less than 9%, and from that up to 45%. We further absolutely guarantee a saving of from $\frac{1}{8}$ to $\frac{1}{2}$ lubricating oil.

Installed in Fifteen Minutes

It takes 15 minutes to install the Perfection Water Circulator. Simply replace the ordinary connection from the radiator to the motor with a similar connection in which is located the Perfection Nozzle; tap the exhaust manifold and connect this to the replaced connecting tube. There are no moving parts—nothing to get out of order or wear out—the Perfection Water Circulator will last as long as the car itself.

Extra long connection tube for cars equipped with electric starters

Perfection Water Circulator

You can put your car through the hardest kind of work—mud, sand, steep hills, continued running on low gear—and still the water in the radiator **will not boil**. Form-a-Tractor and Form-a-Truck owners have solved all their heating troubles by equipping with this system.

30 Days' Trial

If it does not give the most efficient cooling you ever had, send it back; and we will refund entire purchase price. Sent anywhere in United States prepaid. Complete literature sent FREE.

\$7⁵⁰

\$3300 in Cash Prizes

\$1000.00 in CASH for merely writing a letter—

We want to know how many car users realize the serious damage that is done to their motor, such as burned-out cylinders, distorted pistons, etc., which practically means a ruined engine—if the car is run when the cooling system is not operating properly. Garage men, automobile and accessory dealers know all these things, but we want to find how many motor car **OWNERS** realize how much gas they are wasting, producing excessive carbon with all of its bad effects, together with entirely upsetting their lubrication, when their pump-circulated motor is **over-cooled**.

Send for particulars of Prize Contest, Entry Blank, and Booklet on what happens to **ANY** motor when the **Cooling System** fails to work, together with suggestions to contestants that will help them to write their letter and compete for these Cash Prizes.

706 other Cash Prizes

Dealers Wanted We want the liveliest concern in every territory to handle this proposition, as also the other accessories marketed by us. Tremendous sales possibilities, backed by an extensive advertising campaign.

Side Line: Salesmen traveling in Ford cars will find this a most profitable side line.

Send Coupon Today

Motor Cooling Systems Co.

1317 Conway Building
Chicago, Illinois

Please send me entry blank in your Prize Contest, also copy of your booklet, "Motor Cooling Systems."

Name.....

Address.....

City.....

State.....

The Motor Cooling Systems Co.
(Baltimore, Md.) Sales Office, 1317 Conway Bldg., Chicago

Turn Your Used Car Losses into Gains

USE

NATIONAL USED CAR MARKET REPORT

"The Barometer of the Used Car Market"



A basic Market Report on used Automobiles—Lists all models and specifications—Shows what they are selling for. Issued four times a year—Information always current.

ARE YOU USING IT?

**Live Dealers Everywhere ARE!
It's Making Money for Them!
It'll Make Money for You!**

**GET IT NOW
ON TEN DAYS' APPROVAL—**

at 50% saving—

Description: A 139-page book, 9" x 12", issued every three months, giving the current market value of every used car of every model from 1912 to 1917 inclusive, of one hundred and thirty-two different makes of gasoline pleasure cars and fourteen electric vehicles, together with complete specifications of same.

SPECIAL OFFER

The regular subscription price to the NATIONAL USED CAR MARKET REPORT SERVICE is \$24.00 per year. For a limited time we will accept subscriptions at \$12.00 per year—just one-half the regular price.

Send us your check, money order or draft for \$12.00 and get the SERVICE on ten days' approval. **USE THE COUPON**, attaching same to business letterhead. We will ship current edition at once. **USE IT TEN DAYS!** Let it make some money for you. At the end of that time, if you're not satisfied—return it and we will refund your money.

Subscriptions will be accepted only from bona fide automobile dealers, so please identify yourself when writing.

Published Quarterly by

**CHICAGO AUTOMOBILE
TRADE ASSOCIATION**

2136 Michigan Avenue, Chicago

THIS COUPON WORTH \$12.00

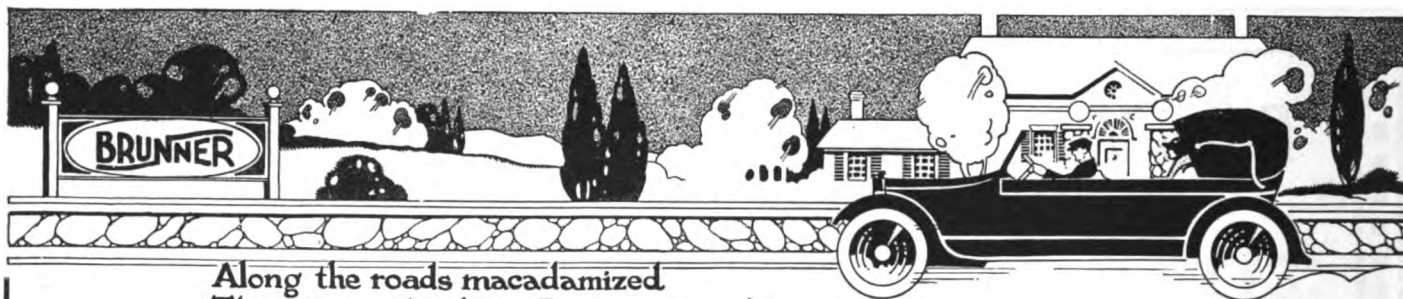
Chicago Automobile Trade Assn.
2136 Michigan Avenue, Chicago

Enclosed find check, money-order or draft for \$12.00, which please ship current edition of National Used Car Market Report on 10 Days' Money-Back Trial.

Name.....
Address.....
.....
.....

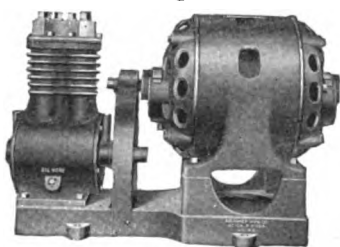
Attach coupon to business letterhead for \$12.00, for National Used Car Market Report on 10 Days' Money-Back Trial.

When writing advertisers please mention Motor World—It identifies you



Along the roads macadamized
The Motorist who is Brunner-wised—
Speeds smooth—with danger minimized
Because his tires are Brunner-ized—

The pleasures of motoring are enhanced and the dangers are minimized when tires are properly inflated—smooth rides with danger of blow-outs lessened are insured by Brunner Service—and that is why the Brunnerwise Motorist patronizes the garage displaying the Brunner Sign.



Ever since the garage business has been a business the Brunner Air Compressor has been consistently demonstrating its sterling worth to the garageman—in the garage. Year after year the demand for Brunner Air Compressor Equipment has been doubling over, simply because the Brunner Air Compressor has always stood up and given satisfactory service. The motorist who patronizes the garage displaying the Brunner Sign always finds an ample supply of clean, cool air at the proper pressure to inflate his tires correctly at his disposal.

The Brunner Sign Attracts the Trade of the Brunnerwise Motorist

Because he knows that the garage displaying the Brunner Sign is always prepared to render him prompt and efficient compressed air service—he knows that when he pulls up under the Brunner Sign he never has to drive away disappointed.



He realizes that clean, cool air, such as he always finds at his disposal under the Brunner Sign, will increase his tire mileage and will reduce the dangers of motoring to a minimum. That is why the trade of the Brunnerwise Motorist follows the Brunner Sign.

The Safe Way Is the Brunner Way

The Brunner Air Compressor has always proven true to the Jobber who sells it—the Garageman who buys it—and the motorist who uses it. Are you Brunnerwise?

The Garageman who buys Brunner Equipment is never disappointed, for the reason that it has never been necessary to resort to misleading advertising claims in order to bolster up the sale of Brunner Equipment, and the garageman purchasing Brunner Equipment always receives just what he expects and "a little bit more."



INVESTIGATE THE **BRUNNER** AIR COMPRESSOR

Be honest with yourself and investigate the garage air compressor question thoroughly before deciding on your new equipment. The Brunner will stand investigation and the more thorough the investigation the more certain will be your decision in favor of Brunner Service, because it not only insures compressed air efficiency of the very highest order, but it also insures that very desirable and liberal patronage of the Brunnerwise Motorist, which follows the Brunner Sign.

We will be glad to send you the name of the Brunner Jobber who covers your town, also our catalogue and Garageman's Handbook on Compressed Air—a book which every garageman should read carefully. They are all free for the asking.

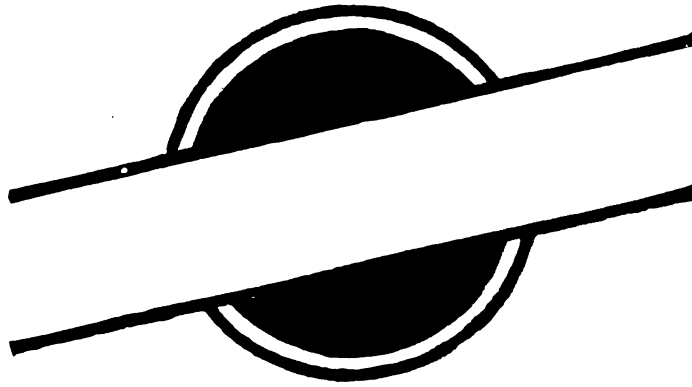


BRUNNER MANUFACTURING COMPANY

Main Office and Plant:
UTICA,
N. Y.

Cincinnati Branch:
CINCINNATI,
OHIO





Big dealers
and distributors—
small dealers and
distributors—share
alike in the in-
terest, cooperation, the sell-
ing support of the parent
company.

This company is now
spending hundreds of
thousands of dollars to help
its dealers and distributors
make *more sales* and
greater profits.

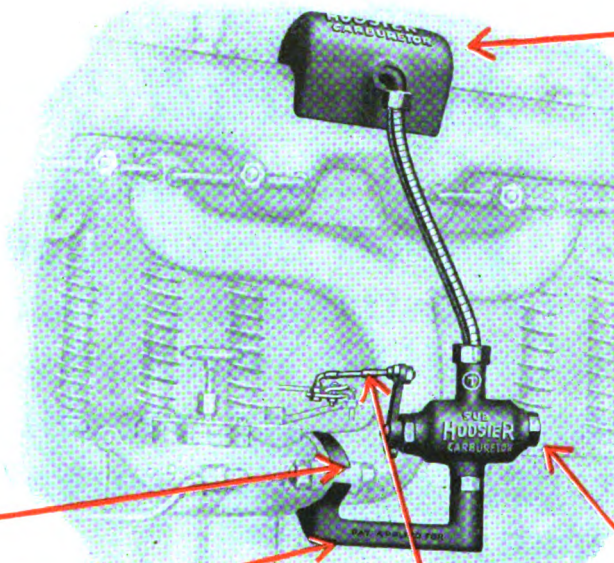
See announcement next week

For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.

Get these Guaranteed 3176 Users out

**40% Greater Mileage
35% Greater Power
30% More Speed**

**Money
Back
in
30 Days
if not
Satisfied**



Heater
Fits over exhaust—Air inlet in back—Carries heated air through flexible tube to valve. On large cars flexible coil around exhaust replaces heater box.

**\$7⁸⁵
for
Fords**

Light 4 Cylinder Pleasure Cars \$ 8.75
Heavy 4 Cylinder Pleasure Cars 9.50
Little Six Cylinder Pleasure Cars 10.00
Big Six Cylinder Pleasure Cars 11.25
Eight Cylinder Pleasure Cars 12.25
Twelve Cylinder Pleasure Cars 14.50
Add duty for Canada

Screen Block
This screen block fits between carburetor and intake manifold and contains air spray nozzle for supplying air to mixture and a fine wire cloth mechanically break mixture into finer form.

Construction
Hoosier Sub-Carburetor, made of the finest materials: aluminum, cold rolled steel, cast iron. Fully guaranteed for life of motor on which it is installed.

Automatically Regulated
Control of volume of air passing into the mixture automatically regulated by throttle control. You get an exact mechanical mixture, just right for highest efficiency at all engine speeds.

Valve
Controls volume of heated air passing into the mixture, giving exact proportions necessary for all conditions of motor operation.

OVER 4,000 Hoosier Sub-Carburetors have already been sold—over 3,000 enthusiastic testimonials have come in to us entirely unsolicited. Everyone says: "Hoosier Sub-Carburetor is the greatest economy device ever put on to a motor."

Heated air is drawn from the logical place—around the exhaust pipe. It is injected into the mixture at the proper point just after the

mixture leaves the carburetor. The amount of air is mechanically regulated. You get a rich mixture when you need it—starting or running on low engine speeds. You get a more economical, more explosive mixture when you want it—at high engine speeds. That is why users of Hoosier Sub-Carburetor say: "If we had to pay five times as much for it, we would gladly do so because of the results it gives."

Any Good Garage Man will Verify This

How does Hoosier Sub-Carburetor increase mileage? It breaks the mixture up into finer form—gives it more air.

NOTE—About 87% of the gasoline taken into a motor with an ordinary carburetor comes out from the exhaust unexploded. It is not sufficiently vaporized. Hoosier Sub-Carburetor cuts down this waste by a big percentage by breaking up the mixture and vaporizing it much more completely.

How will Hoosier Sub-Carburetor prevent carbon? Carbon is formed from unexploded gasoline in contact with lubricating oil.

Hoosier Sub-Carburetor greatly reduces the amount of unexploded gasoline. Prove this by opening the pet cock on a motor not equipped with Hoosier Sub-

Carburetor. You get a dull red blaze without Hoosier Sub-Carburetor. With it you get a clear, steel-blue blaze.

How does Hoosier Sub-Carburetor give more power and speed? It breaks up and vaporizes the mixture—makes it more combustible—gives a quicker and more powerful explosion.

How does Hoosier Sub-Carburetor give greater flexibility? Motor flexibility comes from the proper regulation of a mixture and a more rapid explosion. When the gas explodes rapidly, the motor does not load up.

We Guarantee These Results

We positively guarantee, with a 30-day money-back clause, the amazing results obtained by Hoosier Sub-Carburetor users.

40% greater mileage. 35% greater power. 30% more speed. Wonderful flexibility—easier starting—less carbon.

Use Hoosier Sub-Carburetor on your own car. If you don't get these results send it back; we will gladly refund your entire purchase price within 30 days of your purchase.

Amazingly Simple to Install

You can install Hoosier Sub-Carburetor in a very few minutes—do all the work yourself if you want to. Full instructions accompany each device. After you have once put it on your motor, you will hardly recognize your car as the same one you were using before you made the installation. It will put the "pop" of a new car into any old motor. It will make any new motor tremendously more efficient.

3176 testimonial letters from 4000 users — UNSOLICITED

Wanted—Exclusive Dealers

The Hoosier Sub-Carburetor will sell like wildfire to every car owner. As soon as you get your contract we will prove results on cars in your territory—ready for you to start sales. We will back you with big national and local advertising. Prove to us that you are the best equipped and responsible. Write, wire, phone or jump the first train for Indianapolis; get this fastest selling necessary; a money-saver for any car owner—a money-maker for you.

Better Than 30 Miles

I put the Hoosier Sub-Carburetor on my car and filled the tank full, and when the gauge showed three gallons, my speedometer read 214 8/10 miles, which is a little better than 30 1/2 miles to the gallon. I was averaging 100 miles to five gallons of gasoline before I installed it.
D. L. STINSON, Twin Buttes, Ariz.

Speed—Power—Less Carbon

I am well pleased with my trial. I get more speed, power, less carbon, and the engine runs a great deal smoother.
J. A. TEAGARDEN, Auburn, Cal.

Could Not Be Without It

I installed the Hoosier Sub-Carburetor on my car a few days since and made a trip of 20 miles through heavy mud roads. I closed my needle valve nearly one-half turn and the engine had more power and pep than it ever had before. In fact, I could not get along without it.
C. L. HOOKER, Crowley, La.

Average 24 1/2 Miles

Your favor of the 28th received. During 10 days' use of the car it covered 514 miles on 21 gallons of gasoline or an average of barely 24 1/2 miles to the gallon.
WM. A. HOWE, Pasadena, Cal.

Big Gain Over All Others

My tests were as follows: Miles per gallon of gasoline on Ford car, with no other changes except carburetors. With Kingston Carburetor, 18 miles per gallon; Holly Carburetor, 22 miles per gallon; Stromberg Special Carburetor, 27 miles per gallon; Hoosier Sub-Carburetor, 31 1/2 miles per gallon.
R. E. BEERS, Pond, Cal.

Runs Like a New Car

My car is 2 years old in November and with your Carburetor it runs like a new car.
C. E. EDWARDS, Buhl, Idaho

When writing advertisers please mention Motor World—It identifies you

Results-on any Car-Today of 4000 say— Wonderful Flexibility Easier Starting Less Carbon

Easy to Install
No Adjustments
Positive in Action

SUB Hoosier CARBURETOR

Ready Now
Ship Anywhere
Get it

YOU are a live dealer—wide awake to real selling propositions. It won't take you a minute to see why this wonderful device is certain to be your biggest seller.

Thousands of devices have purported to give economy, flexibility, speed, power. Where are they now? They are not on the market. What is the reason? Simply the fact that they did not make good when they were used by car owners. If they had made good they would still be selling like wildfire. Gasoline price is going up. Car owners must get more mileage.

Hoosier Sub-Carburetor is a proved economizer—a proved power and speed developer—a proved advantage to any motor. It has made good.

You have already seen big evidence of this fact. Over 4,000 Hoosier Sub-Carburetors have already been sold—over 3,000 enthusiastic testimonials have come in to us entirely unsolicited.

These 4,000 users came without any sales effort at all. No advertising. No big dealer campaign. They were orders that came just because car owners wanted Hoosier Sub-Carburetors. But they are of tremendous value to you. They show you that Hoosier Sub-Carburetor is a real selling proposition.

This is Your Big Chance

Hoosier Sub-Carburetor is going to be the fastest selling accessory ever offered dealers. All the preliminary work has been done. The tests have been made—owner satisfaction has been proved. Our advertising campaign will be tremendous, in all the big national publications. We are going to sell Hoosier Sub-Carburetors for you.

Big Mileage Increase

I went 176 miles without the Sub-Carburetor. Left with a full tank of gasoline, when I got home I had one inch left in the tank. Then the next Sunday I went 194 miles. Left with a full tank of gasoline and when I got home I had 3 1/4 inches left in the tank.
H. BEUKEN,
San Francisco, Cal.

Doubled Mileage

I have purchased a Hoosier from you and have it on my car, getting from 25 to 35 miles on a gallon of gasoline, where I didn't get but 12 to 18 before I put on the Hoosier.
B. E. HARRIS,
Americus, Ga.

More Snap and Vim

I had been getting from eighteen to twenty miles on a gallon of gasoline, but with your Sub-Carburetor I got an average of thirty-two miles and more snap and vim to motor.
DR. H. K. RADCLIFF,
Dunkirk, Ind.

40% Increase

On my trip to Washington, D. C., and return, my average mileage was about 16 miles per gallon, with my Inter-State Six. Before installing the Hoosier I did well to make 11 miles per gallon. The increased power is certainly noticeable. It's a dandy.
DR. J. M. SINGER,
Dunkirk, Ind.

9 Miles Increase

Mileage has been increased from twenty to twenty-nine miles on each gallon of gasoline used.
HARRY O. WILSON,
National Military Home, Ind.

Gained Over 15 Miles

Got 34 3/10 miles per gallon of gasoline, where without it I made only 18 5/10 miles

The demand in your territory will be instantaneous.

Bigger than any demand you have previously experienced for any accessory.

What automobile owners have tried to get in other economizers, they do get in the Hoosier Sub-Carburetor. The time was never so ripe as it is now for a real, practical gasoline saver—power and speed increaser—than can be used on any make of car.

The possibilities are stupendous. Your time for action is limited.

Dealers are already being closed up in tremendous numbers in all parts of the country. If you are a distributor you can make Hoosier Sub-Carburetor the biggest producer you have to sell. The demand will be so tremendous—so spontaneous that all you will have to do is to take orders.

Practically every user of a Hoosier Sub-Carburetor has sold several more to his friends. Take advantage of this tremendous wave of business.

Don't Forget The Money Back Guarantee

If we had not already shown you the tremendous number of unsolicited testimonials that have come to us, our "Money Back in Thirty Days" guarantee would be sufficient evidence that we have an accessory of proved value. For we put the proof entirely up to the user.

A few minutes' work and the Hoosier Sub-Carburetor is installed. Then the user has thirty days to prove its wonderful advantages.

Whatever else you do, wire now for this big seller.

over the same road and in the same time under the same conditions.
A. McALEXANDER, San Diego, Cal.

Very Good

We gave your Sub-Carburetor a good test and made 19.4 miles without and 26.2 miles with it. I think this is very good.
HERZOG'S FURN. CO., Saginaw, Mich.

You Want This Real Economizer On Your Car

We don't have to prove to you that you need this wonderful economizer. Over 3,000 automobile users have already proved it by their own experience.

We don't have to argue about the wonderful merits of Hoosier Sub-Carburetor. Our wonderful money-back guarantee is your protection. If within thirty days after you use it you feel that you can do without it, return it to us and get your money back. The only thing we want to say to you is, "Get your order in early. Send the Coupon. You have thirty days in which to satisfy yourself of the results."

M.W.
HOOSIER SUB-CARBURETOR CO.,
Indianapolis, Ind. 6-27-17

Enclosed find check or money order in full payment for one Hoosier Sub-Carburetor with the understanding that you guarantee it for life and will refund cost price in full if I return your device to you collect within 30 days.

Name of car model year

Name

Address

I recommend as a good dealer

..... of

Hoosier Sub-Carburetor Co., Indianapolis, Ind.

When writing advertisers please mention Motor World—It identifies you

The TRUCKMOBILE

and YOU—

The truck attachment idea is admittedly the sensation of the automobile industry. Its growth in the few short years of its existence has been without equal. Dealers, who only a few months ago scoffed at the idea of representing a truck attachment, today are selling hundreds of them.

This is your opportunity to do the same. But in selecting a truck attachment dealership you want, above all, to represent the one that is biggest in actual construction, biggest in correctness of design and engineering, biggest in performance, biggest in consumer value, biggest in dealer profits—in every way

“Biggest of them all!”

From among the many big points of superiority of the TRUCKMOBILE we list these four—unique to the TRUCKMOBILE—which make it stand out above all others:

Widest of them all— 6 to 9 inches wider frame than any other gives added stability and sturdiness and eliminates the sidesway with its drag on the motor and wear on bearings.

Longest of them all— 133 inch wheel base permits greater loading capacity and makes it easiest riding and easiest steering of them all.

Strongest of them all— Massively, though simply, constructed to give highest degree of service under any and all conditions. Strongly reinforced at every point where weakness develops in others.

Simplest of them all— Fewer parts and less of dealers' time spent in attaching to Ford chassis. No cutting of Ford rear axle or housing necessary.

A Guaranteed 1½ Ton Truck for Every Purpose



Then too—the exclusive method of spring suspension with the springs interposed between frame and axle, the quickly attached bell sprocket. Add to this the fact that the TRUCKMOBILE is the greatest value for the money—most economical of them all in tire and gasoline mileage, cost of operation and upkeep. All these things make it **Best for the Dealer to sell because it is Best for the User to buy.** Write today for attractive dealer's proposition.

Commercial Truckmobile Co.
300 Truckmobile Bldg. Chicago, Ill.

TRUCK

When writing advertisers please mention Motor World—It identifies you

Has Ten Big Exclusive Features

\$350

And a Ford Chassis
(Old or New)

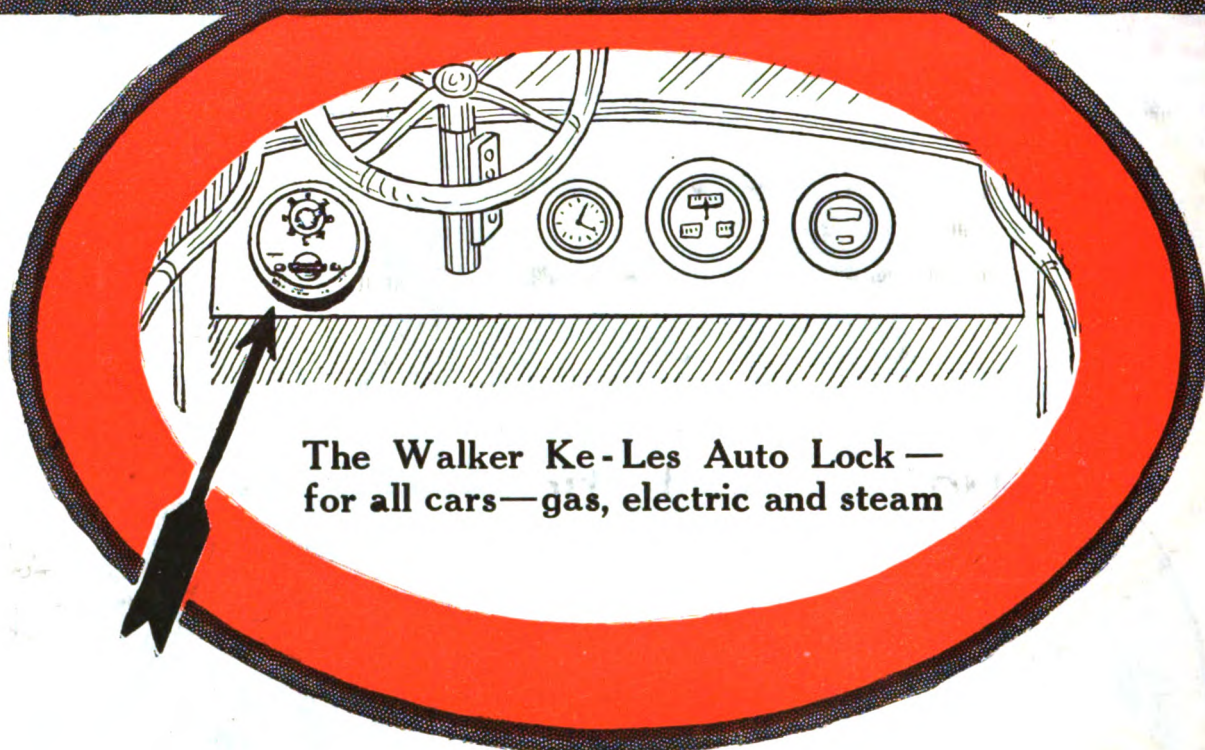


Rear view of the TRUCKMOBILE, showing TRUCKMOBILE attached to Ford chassis. Note massive construction, heavy reinforcement of frame and position of spring interposed between frame and axle.

MOBILE

When writing advertisers please mention Motor World—It identifies you

AUTO THIEVES



The Walker Ke-Les Auto Lock —
for all cars—gas, electric and steam

Cuts Off Gasoline, Battery Magneto and Self-Starter

LOCK your car with the Walker Ke-Les Auto Lock and it's as safe as any secret in your brain. No key of any kind is used. The Walker Ke-Les works on a combination principle. You set your three-number combination and you're the only one who can start your car. Over 87,000 changes to the combination.

A slight turn of the wrist cuts off the gas, battery magneto and self-starter. No one can steal your car. No one can drive it away. The Walker Ke-Les is easily locked or unlocked in the dark.

Over 3,500 already in everyday use. You're not buying an experiment.

Money Refund Guarantee

We absolutely guarantee that the Walker Ke-Les Auto Lock is perfect as to material and workmanship. We further guarantee that each and every Walker Ke-Les Auto Lock will positively do everything we claim for it or your money refunded.

A turn of the wrist Locks Your Car

A turn of the knob to three numbers and your car is unlocked. Just a couple of seconds. The Walker Ke-Les locks and unlocks quicker than you could find your key.

A key lock invites tampering. The Walker Ke-Les lock defies it. **One glance at the lock is enough to drive any thief away.** Change the combination as often as you please. You can do it in a minute.

Will last a lifetime

A marvel of simplicity is the Walker Ke-Les Auto Lock. Just a few parts. No springs to weaken. No complicated mechanism or tumblers—just smoothly operating, noiseless discs—positively can't get out of order.

Sets flush with the dash or instrument board, same as speedometer. Right in front of the driver. Can be installed on any car—gasoline, electric or steam.

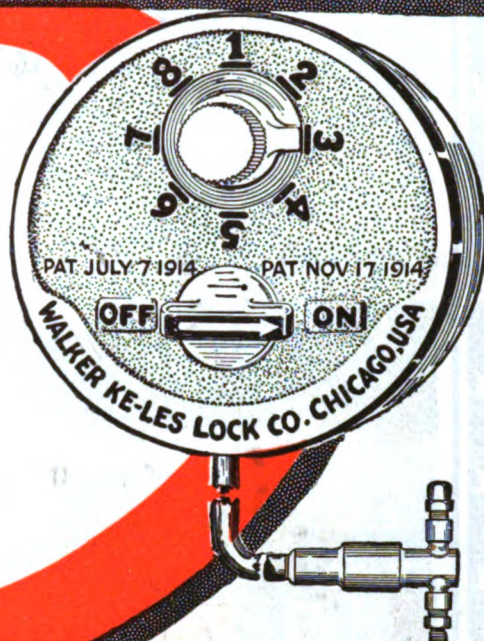
WALKER KE-LES LOCK CO., CHICAGO, U. S. A.
JAMES H. CUMMING, Sales Manager

WALKER KE-LES

When writing advertisers please mention Motor World—It identifies you

NOW FOILED!!

NO KEY
to lose or leave in
the lock—
No keyhole to find



\$10

(\$15
Properly
Installed)

IMMEDIATE DELIVERY!

The small sum of \$10 renders your car absolutely safe from theft. That's the price of the Walker Ke-Les Auto Lock—only \$10. Have a Walker Ke-Les Auto Lock put on your car today. Go to your regular accessory dealer or to any good garage or auto supply store. If the dealer is not yet supplied, send direct to us. Use coupon below.

Save Your Car!

"Walker Lock" it without delay!

Organized bands are stealing automobiles everywhere, changing their appearance and shipping them to distant cities. Thieves may now be "laying" for your car. It's liable to be stolen any hour of the day or night. **SAVE IT!** Put on a Walker Ke-Les Lock and laugh at auto pirates.

FIRE! The Walker Ke-Les Auto Lock absolutely prevents "back-fire" setting fire to your car.

It also complies with the Insurance, Police and Fire Department requirements with respect to cars standing in the street.

WALKER KE-LES LOCK CO., CHICAGO, U. S. A.

Write Today! Learn all about this marvelous Auto Lock. Mail the coupon or postcard for full description. Do so today. Don't put off this important step. Better be safe than sorry.

Mail the coupon at once!

A Word to Dealers

No matter what your experience has been with so-called "Auto-locks," you will find the Walker Ke-Les to be the right thing. It's bound to be one of the largest sellers in accessories ever brought out.

We can supply you in any quantity promptly. No disappointments. No delays.

Write for our proposition—**TODAY!**

"Tell Me About It" Coupon

Walker Ke-Les Lock Co.

Dept. C, Cunard Bldg., Chicago, Illinois

Gentlemen—Without obligation on my part, please send me postpaid free, your booklet telling me all about the Walker Ke-Les Auto Lock. I own a.....

Name and Address

AUTO LOCK \$10⁰⁰

When writing advertisers please mention Motor World—It identifies you



To Dealers: DREADNAUGHT BATTLESHIPS safeguard our seaports against invasion and pillage and insure Liberty. DREADNAUGHT TIRES safeguard the motorist against the ruthless grind of the road and insure his freedom from vexatious delays. DREADNAUGHT policy safeguards the dealer against violation of his territory, and the intensive co-operation of the sales' department insures quick returns.

5000 MILES GUARANTEED

DREADNAUGHT TIRES are the sturdiest, most durable and smoothest-riding. In addition the handsome red treads combined with the soft-toned ivory side-walls add distinction and smartness to the car. Wherever introduced DREADNAUGHT TIRES have instantly won the favor of the motoring public and the demand is unparalleled throughout the entire country.

DREADNAUGHT Red "Silent" Vacuum Tread, a positive non-skid, is without "drag" and the bar through the centre of the cups minimizes road friction and that "humming" noise. DREADNAUGHT Red Ribbed Tread supplants to great advantage the old-fashioned plain tread.

Dealers write or wire for our liberal proposition while there still remains unoccupied territory.

CHARLES F. U. KELLY, Inc.

Sales Department

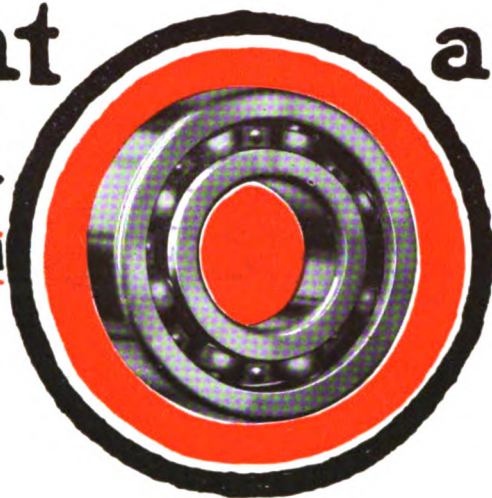
1834 Broadway, New York

Manufactured by

The Dreadnaught Tire & Rubber Co.
Baltimore, Maryland

Beautifully illustrated booklet,
"The Evolution of the Battleship,"
by Henry McDonald Spencer,
sent free on request.

Are Your Friction Losses 4 to 20 Times as Great as They Should Be?



Unless you are using ball bearings, your friction losses are from four to twenty times as great as they should be. This means wasted power, wasted effort, wasted money—general inefficiency. In these days of high operating costs, this question of efficiency is a vital one. Be sure that your machine is efficient—that it is ball bearing equipped at every frictional point.

U.S. Ball Bearings

The use of U. S. Ball Bearings insures the highest efficiency possible: first, because they are ball bearings; and secondly because they are the highest quality ball bearings possible of manufacture. This is true because in the production of U. S. Ball Bearings only the accepted highest grade material—chrome carbon steel, hardened throughout—is used; and because in the fabrication of this highest grade material only the most expert and highest type of labor is employed in conjunction with the most modern manufacturing equipment known to the ball bearing art.

The present, new, modern equipped U. S. Ball Bearing plant has been occupied but little more than a year, which means that not only is it newly equipped, but that the equipment represents the very latest development known to the manufacturing world. It is the largest exclusive quality bearing plant in the country, and has a capacity of 10,000 quality bearings a day.

In these days of highest efficiency, it is essential that ball bearings be used to overcome friction. Therefore, if you would be efficient, use ball bearings—U. S. Ball Bearings, preferably—but at all events ball bearings.

U.S. BALL BEARING MFG. CO.
Conrad Patent Licenses
Palmer St. & Kolmar Avenue, Chicago Ill.

BALL BEARINGS FOR EFFICIENCY



OTHER BEARINGS FOR PRICE

BALL BEARINGS

When writing advertisers please mention Motor World—It identifies you

Is Your Order in for FLAGLITE

Since Our First Announcement

The expected has happened—tremendous demand for Flaglite—delivering thousands a day.

If you haven't stocked with these illuminating flag-holders, do so at once. There's a good, substantial profit in it for you, and you can sell them as fast as you get 'em.



A Moto-Meter illumination

That's what other dealers and jobbers are finding out.

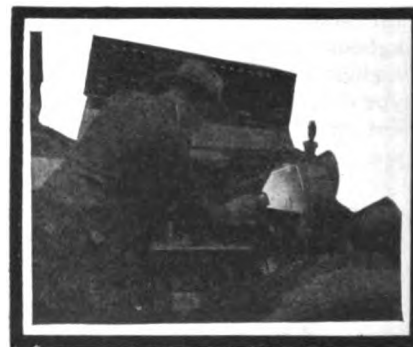
And no wonder! When you think of what the motorist gets for \$2.00.

He gets a splendid flag-holder—a dignified, good-looking stand that doesn't discredit the flag. He gets a bully little light that serves his patriotism at night as well as day—a beautiful illuminator for the flag as well as an inspection lamp or a light for his moto-meter—and many other uses.

Motorists recognize its timely value at once, and you have all these other uses to tell them.

Flaglite can be installed in five minutes. Merely clamp the lamp to the radiator cap and run the wire through radiator to battery.

Just think of the actual value of the thing from your customer's viewpoint. A brass (silver-plated) parabola, a cold rolled steel rubber-finish bracket, a perfect miniature searchlight made on the principle of the big flood lamps, a silk flag and staff—all for \$2.00. And you get a good, substantial profit.



As an inspection light

Now—Now—NOW—Fill out the coupon now! or wire us while we can take care of you. They're going fast—and it's "first come, first serve" with us.

SHOW YOUR COLORS NIGHT AND DAY



FLAGLITE

\$200
COMPLETE

Flaglite is an illuminated flag for the automobile, not a novelty, but a flag spotlight, a roadside inspection lamp and an accessory with many other uses—plus an endless life.

The Flaglite Company **Flaglite Sales Corporation**
Schofield Bldg. 1790 Broadway
Cleveland - - Ohio New York City

Flaglite Company
Schofield Bldg.,
Cleveland, Ohio
or 1790 Broadway, New York

Please send me at once details
of your big money-making dis-
counts for dealers on Flaglite.

Send to nearest address

Name
Address
.....

When writing advertisers please mention Motor World—It identifies you



To Help You

EVERY feature shown here—folders, booklets, window hanger, display cabinet—all have been planned to help you sell more GARCO Brake Lining with less effort on your part.

Each one definitely links your store up with our national advertising that tells the car owner to buy GARCO from the best dealer in town.

Because the highest quality is built into GARCO—because it *resists wear* longer than any other brake lining made—because it gives more dollar for dollar value—it follows naturally that the man who buys GARCO places more confidence in the other accessories you sell. GARCO advertising strongly emphasizes the fact that this confidence is rightly placed.

You are entitled to the extra business these sales-helpers will bring. Ask your jobber about them, or write us direct.

GENERAL ASBESTOS & RUBBER CO., MAIN OFFICES and FACTORIES **CHARLESTON, S. C.**
 Branches and Complete Stock:—58 Warren Street, New York 311 Water Street, Pittsburgh
 106 West Lake Street, Chicago

Pacific Coast Distributors, HUGHSON & MERTON, INC., 530 Golden Gate Avenue, San Francisco
 LOS ANGELES, 1229 South Olive Street PORTLAND, 326 Ankeny Street SEATTLE, 806 East Pike Street

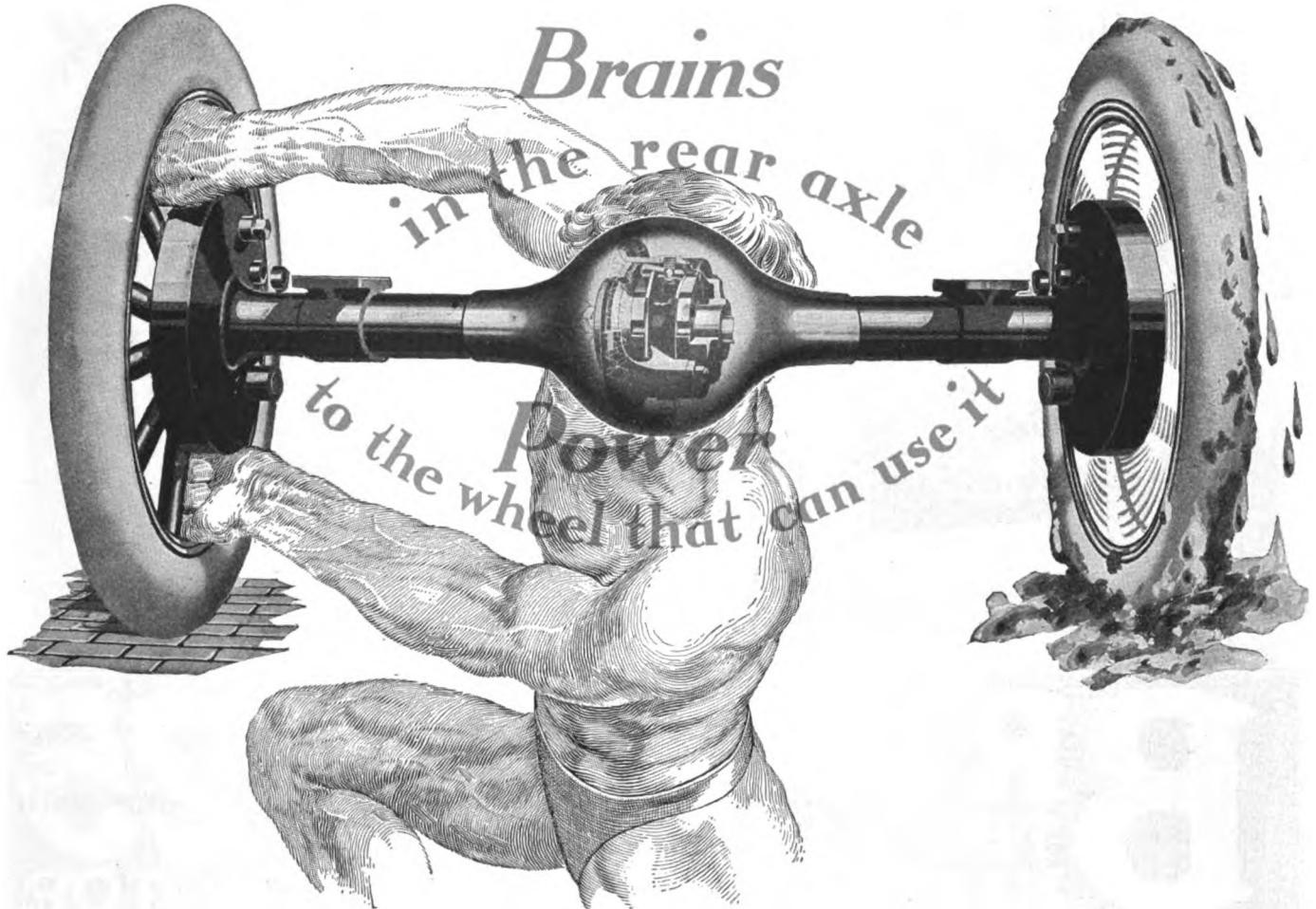
Manufacturers of Asbestos and its products in the

When writing advertisers please mention Motor World—It identifies you

BAILEY

NON-STALL

DIFFERENTIAL



A Fundamental Necessity For Every Car

The Bailey Non-Stall Differential is *not* an accessory. It is *not* an added convenience!

It corrects a basic weakness.

The old-style differential, in use since the first automobile, both fails to do what it should and does what it should not.

The Bailey allows the outside wheel to overrun when the car is going around the corner. In this respect *only*, it resembles other differentials.

The Bailey differs, in that it intelligently sends the power to the wheel which has traction and can use it.

Old-style differentials let the power go to waste by

sending it to the wheel that does not have traction—the (the wheel in the mud, for example).

This causes practically all skidding, slipping, stalling, spinning and side-swaying.

It is an enormous unnecessary waste of power and tires, and often causes accident troubles and expense.

The Bailey avoids all of this.

With the Bailey no power goes to waste, but *all* of it is used *properly*.

It makes you master of all road conditions.

Anybody can install it quickly.

It can be fitted to any rear axle.

Great Dealer Opportunity

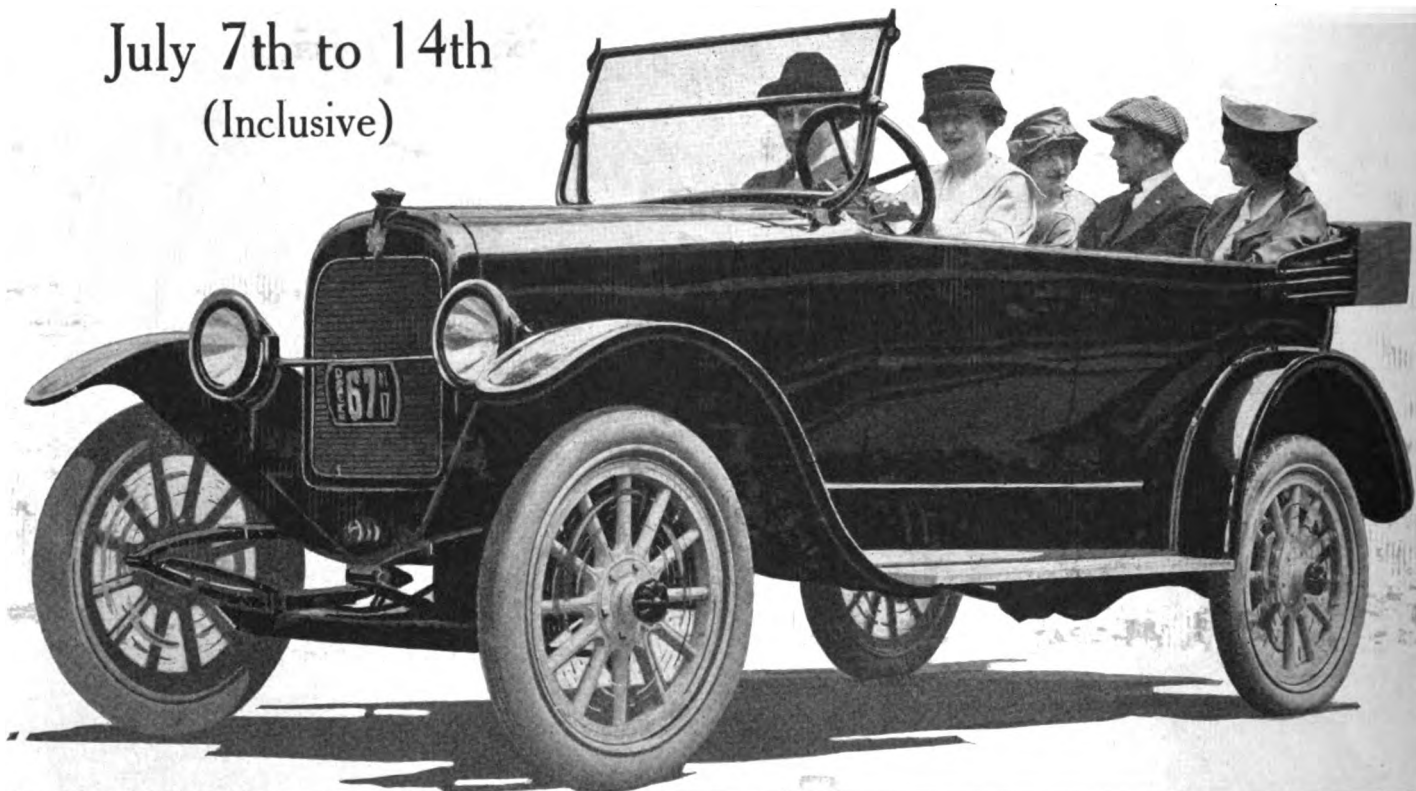
Owners and dealers should write us for complete information

Bailey Non-Stall Differential Corporation, Chicago, Illinois, 1124 Michigan Avenue

When writing advertisers please mention Motor World—It identifies you

National BRISCOE WEEK

July 7th to 14th
(Inclusive)



BRISCOE \$725

THE CAR WITH THE
HALF-MILLION DOLLAR MOTOR



DEALERS:

The Saturday Evening Post Announcement of Briscoe Week will be distributed in your territory July 5th.

This means a great opportunity to open the local exhibit Saturday, July 7th, and cash in on immediate sales. The new Briscoe, with its surprising features, will prove the greatest business-magnet you've ever known.

You may still be able to conduct the exhibit, if your territory has not already been closed.

WIRE now—for complete plan..

NEXT Week is Briscoe Week in 1,000 Automobile Showrooms. The new Briscoe B4-24 models are, we believe, the best looking, the sweetest running automobiles in the field of light cars.

They are distinctive; meadow-green bodies, black fenders, filler aprons and cream colored wheels—the only light cars in which your pride is gratified by the distinctive looks of body and gear in different colors.

Ride behind the Half Million Dollar Motor—inexhaustible power in this model. Building it entirely in our own factories makes possible the low price of \$725.

ANOTHER WAY

to know the Briscoe: read the complete story as told in the Half Million Dollar Motor Book—write for it today.

Touring Car \$725 4 Passenger Roadster \$725
Delivery Car \$725 and \$750 F. O. B. Jackson
Prices Subject to Change Without Notice

Features

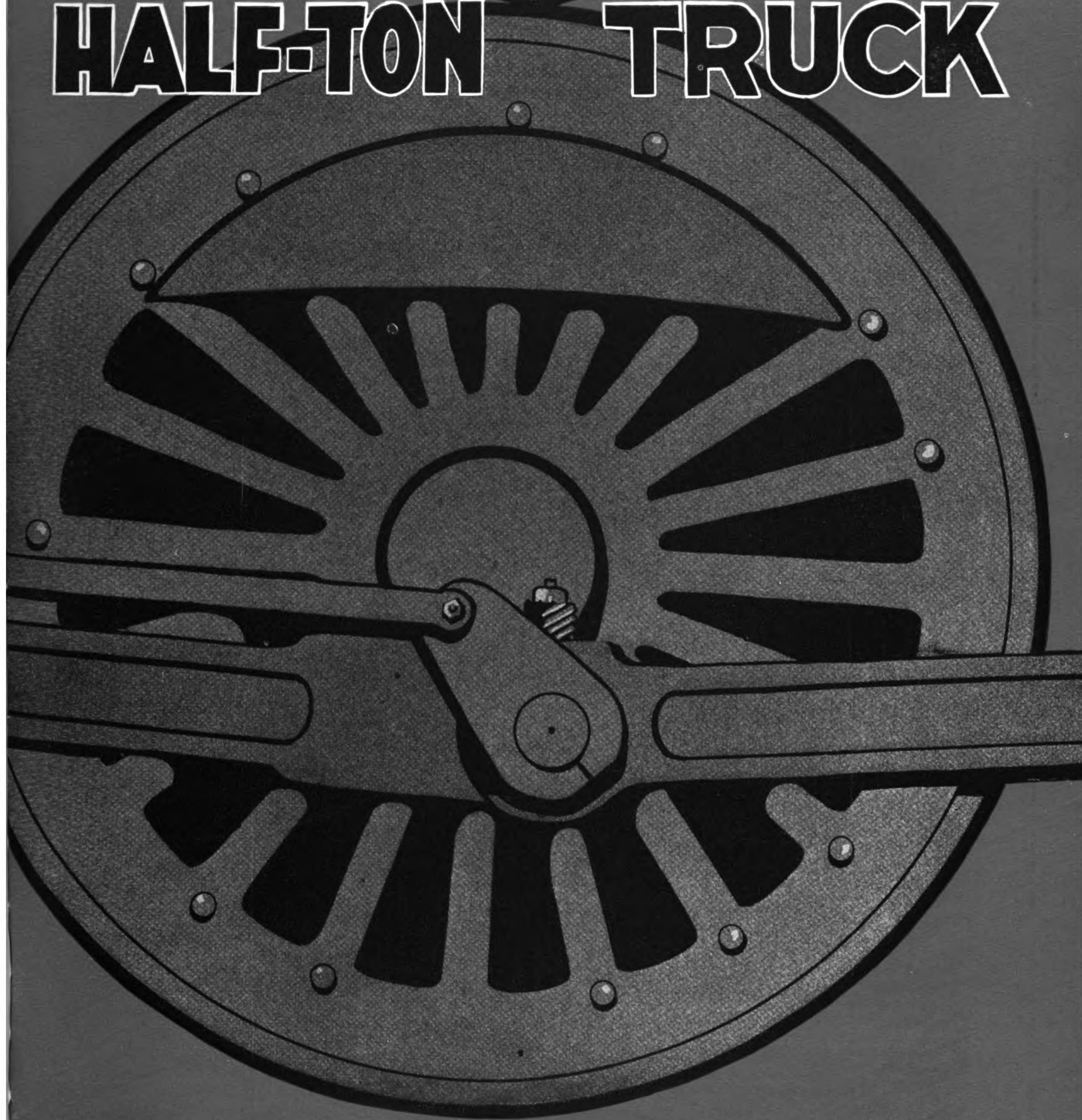
Half Million Dollar Motor: Bore 3 3/16 in.; Stroke, 5 1/8 in.; Detachable water cooled cylinder head; Valves completely enclosed. Wheel Base—105 inches. Rear Axle—Floating Type. Front Axle—I-beam section drop forged. Lubrication—Oil pump, splash system. Carburetor—Automatic. Tires—30 x 3 1/2 in.; non-skid in rear. Springs—Full elliptic, front and rear.

Prices subject to change without notice

BRISCOE MOTOR CORPORATION, JACKSON, MICH. Dept. 81



HALF-TON TRUCK



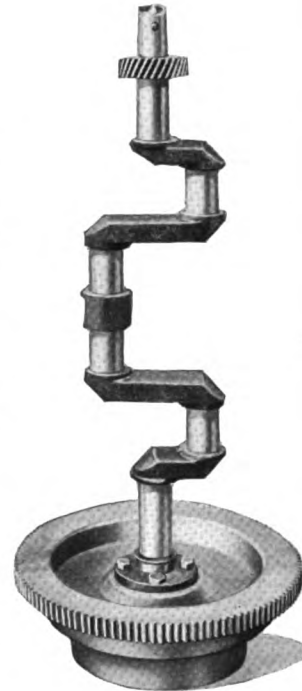
The Only Light Delivery Car with the
Counterbalanced Crankshaft Motor



The Rush
Counterbalanced
Crankshaft



The
Unbalanced
Crankshaft



When You Demonstrate

with a Rush you can throttle the motor down to three miles an hour on high in traffic or you can take the worst hill in your town with never a knock or a jerk. You have stupendous power hooked up with silken flexibility. You have

prolonged life and marvelous economy in gas and oil consumption.

You can race the Rush motor and stand a pencil upright on the radiator.

These are claims — now for the proof.

You know that vibration, unbalanced power, uncontrolled distortion is the bane of the existence of every automobile engineer.

In the field of high-priced pleasure cars the problem has been partially solved by multi-cylinders—overlapping power impulses. But the expense of more than four cylinders in a light delivery truck is absolutely prohibitive.

Rush engineers have eliminated vibration by the adoption of the counterbalanced crankshaft motor.



CHASSIS

\$895

EXPRESS BODY

\$965

Next time you pass a railway locomotive take a look at the drive wheel. Opposite the connection between the drive shaft and the wheel itself—on the other side of the hub—you will see a massive weight. If this weight—in perfect balance with the weight of the opposite side of the wheel—were eliminated you can readily see what would happen. With every power impulse the wheel would jerk until the next impulse pulled it over again. The weight absorbs this jerk and by its own momentum applies driving power until the engine provides another pull, through the drive shaft. (See page one of this insert.)

The average pleasure car motor, and all delivery car motors save only the RUSH, are racked by this same jerking every time power is applied to the crankshaft.

Logically, this means distortion—it means a ton of uncontrolled power is loose in the motor tearing and grinding at every moving part.

This vibration is “synthetic” or cumulative, i. e., the jerk comes every fourth or fifth turn of the crankshaft.

The reaction from this jerk resists the motor power. Resistance of every kind must be overcome by using additional fuel—and gasoline costs real money these days.

The distortion, the unbalanced power, means friction. The more friction, the more oil consumption. Distortion, vibration, loose power cause wear and tear—*high repair bills.*

This is a matter of dollars and cents to you because it is the star feature of a list of selling points that are absolutely exclusive to the Rush.

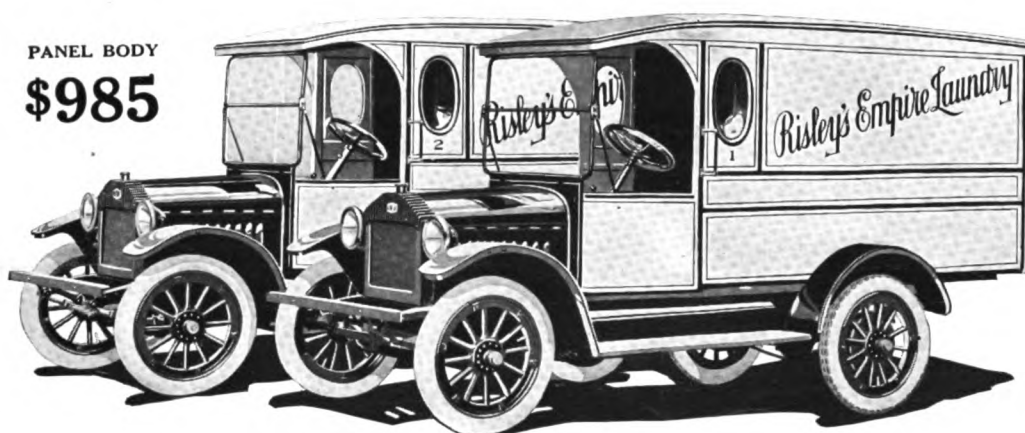
Such a combination of sales material has never before been offered to dealers in a light delivery truck.

Read the specifications on the next page and write for our literature and liberal dealer proposition.

Rush dealers are making fast money everywhere.

PANEL BODY

\$985





Specifications

MOTOR: RUSH $3\frac{1}{4}$ -inch bore, 5-inch stroke; developing 29 H. P. at 1600 R.P.M. Four-cylinder monobloc L-head type — three-point suspension — unit power plant, counterbalanced crankshaft.

STARTING AND LIGHTING: SPLITDORF two-unit system, especially designed for delivery car service. Simple — efficient — compact — weather-proof. SPLITDORF 'D'Arsonval" type — 15-0-15 range ammeter, positively indicating generator charge rate and lamp and horn discharge.

IGNITION: CONNECTICUT distributor — WILLARD 6-80 storage battery.

OILING: Automatic constant level pump and splash oiling system.

CARBURETOR: CARTER clear glass float chamber with Carter easy starting dash adjustment.

RADIATOR: Vertical tubular, with expansion tank. Capacity, 5 gallons. Armored, fin-type removable casing.

CLUTCH: BORG & BECK 8-inch dry plate multiple disc clutch. No "stuttering" nor "grabbing."

TRANSMISSION: COVERT, Model "LB" — selective sliding gear type — three speeds forward and one reverse — center control — extra long levers — 40 H.P., special truck design, with oversize gears. All gears high-grade, heat-treated alloy steel. Roller bearings

UNIVERSAL: 40 H. P. Universal, double-yoke type, with special RUSH strain-relieving ball thrust yoke.

DRIVE: Hotchkiss drive, bevel gear type. Straight line from unit power plant through universal joint.

FRONT AXLE: LIGGETT drop-forged "I"-beam section, with specially designed hubs.

REAR AXLE: Three-quarter floating type — six points of adjustment. BROWN-LIPE differential — chrome-nickel steel shafts, specially treated — taper roller bearings.

BRAKES: Internal expanding — external contracting — operating on rear axle drums, 14-inch x 2-inch ASBESTOS-faced.

SPRINGS: Semi-elliptic — front, 34-inch x 2-inch; rear, 48-inch x 2-inch. Silico manganese steel, eliminating all distortion.

SHOCK ABSORBERS: Pneumatic air check type, designed to absorb rebound without carrying load.

STEERING GEAR: LAVINE heavy-duty truck steering gear; irreversible split nut type.

FRAME: BRILL, pressed steel channel section — flexible type, $3\frac{1}{2}$ inches deep, $2\frac{1}{4}$ inches wide, 5-32 inch thick. All cross members pressed steel, hot riveted, with integral gussets.

WHEELS: 30 inches front and rear, extra heavy — $1\frac{3}{8}$ -inch spokes of selected hickory, fitted with demountable rims.

TIRES: UNITED STATES 31 x 41 all-round plain-tread front — chain-tread rear.

GASOLINE TANK: Capacity, 10 gallons.

WHEELBASE: 105 inches — tread 56 inches.

GASOLINE MILEAGE: 20 to 25 miles per gallon — oil, 600 miles per gallon.

LOADING SPACE: 72 inches back of driver's seat.

EQUIPMENT: GRAY & DAVIS electric, double-bulb head lights and tail light, electric horn, bumper, jack, tire pump, tool kit and extra rim.

BODIES: Fore-door panel; weight, 1950 pounds — fore-door, six-post express; weight, 1850 pounds — equipped with windshield, tire rack and rear fenders.

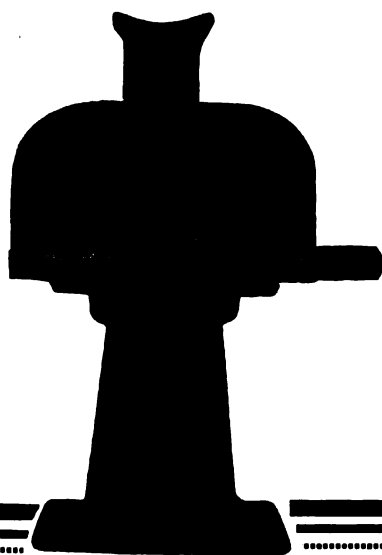
RUSH MOTOR TRUCK CO.

PHILADELPHIA

DEALERS!

Here is an Absolutely New Jack

Interior view showing worm and gears and simple construction.



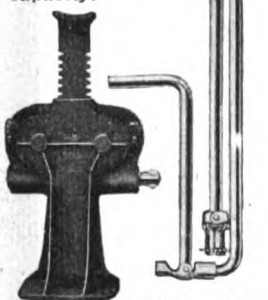
- That works by WORM DRIVE, being entirely different and IMMENSELY SUPERIOR to any other auto jack in existence.
- That sells for \$8, including a good Dealer profit.
- That you can get immediate and complete deliveries of.

Special Features

New principle of lifting jack as applied to automobiles. Developed in railroad service lifting cars to replace bearings.

Right and Left Hand Worm of Cold Rolled Shafting works on two malleable iron gear wheels meshing with plunger, giving double strength. Irreversible, except when power is applied to worm. No springs, pawls, or ratchets.

Large bases insure against tipping. Factor of safety 100% over rated capacity.



Rees Jack folded, ready for tool box.

REES

JACK

WORM GEAR DRIVE

Read this brief description and mail attached coupon to-day! Motor car owners buy this jack the minute they see it work

The biggest feature about the REES JACK, as the owner sees it, is the fact that he can attach its long handle, swing the jack under the car exactly where he wants it, turn the crank raising his car steadily and easily (with no possibility of jerk or slip-back), let the car down again and release jack by merely spinning the handle in reverse direction, pull jack out by the handle, detach handle, fold up and put it away, **ALL WITHOUT EVER KNEELING DOWN OR EVEN**

SQUATTING DOWN AND WITHOUT HAVING TO CRAWL UNDER OR EVEN REACH UNDER THE CAR!

It is not any larger or heavier than the usual run of jacks, and fits in tool box, handle and all. We want every dealer in the land to stock this immediately and we offer you every reason for doing so. Send us attached coupon today! You can sell thousands of these jacks *this season*, and you can be *sure of getting deliveries!* The time to start is now!

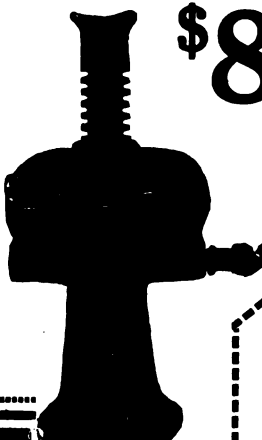
THE SERVICE CORPORATION

Sole Manufacturers

23 FRICK ANNEX

PITTSBURG, PA.

\$8.00



Service Corporation,
23 Frick Annex,
Pittsburgh,
Pa.

Dear Sirs:
Please send me immediately full particulars concerning the REES Jack. My jobber's name

is

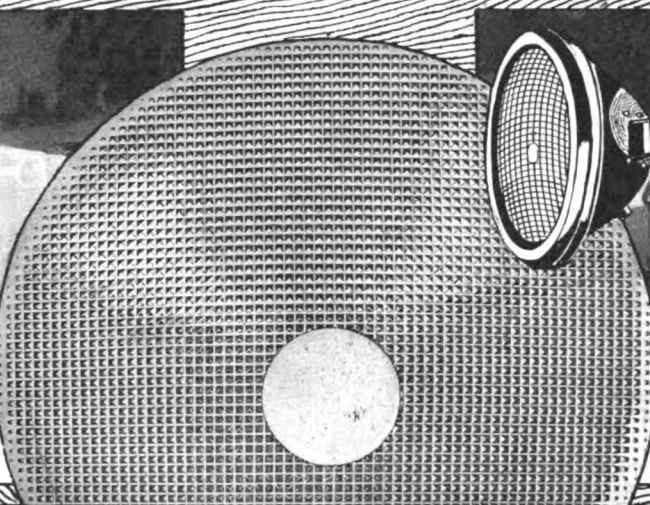
My name is

Address

When writing advertisers please mention Motor World—It identifies you



20,000 prisms break up the rays
—and diffuse a daylight light



This once painful shaft of light
no longer holds danger either for
you or the approaching driver

Prismaolite

The Perfected Lens

The Nearest Approach to Daylight

For years illuminating engineers have struggled for a headlight that would approach daylight conditions. The light must be diffused, radiant and penetrating in effect, but mellow in intensity. Our experts have found it.

Prismaolite gives you these daylight conditions—it lights the road 1000 feet ahead and 30 feet at the side—you can readily read your watch—danger from deep ditches and unseen culverts is no more. It completely illuminates every danger known to night driving. Equip your car now with Prismaolite lenses—ten nights' free trial from your dealer—our warrant is binding. Here are the prices:

Diameter	7 to 9 inches	Price, \$3.50
"	9 1/8 " 10 "	" 4.00
"	over 10 "	" 5.00

Dealers and Jobbers, Listen!

Wherever Prismaolite lenses are demonstrated, they are bought instantly. There are no come-backs. It is the only lens that gives full light from the reflectors—the only lens that has gained universal approval from the Legal Authorities. Cash in from a nation-wide impulse. Write to us now in preparation for *Certain Sales*.

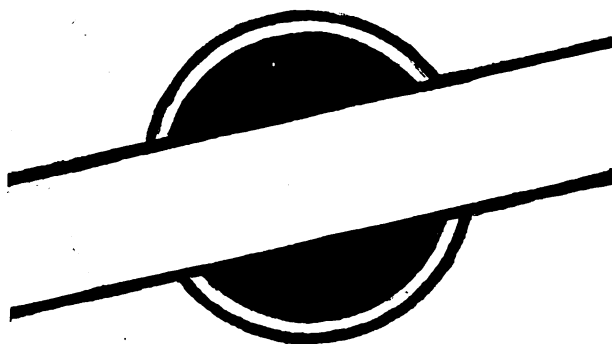
THE PRISMOLITE COMPANY

4th and Gay Sts.

Columbus, Ohio

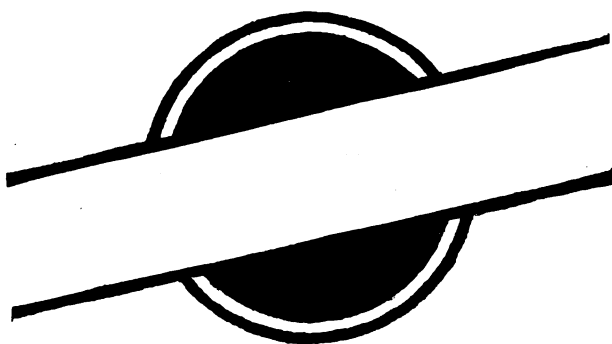


THE ONLY CONVEX DIFFUSING LENS



The South is
the fastest develop-
ing section of the
United States today—
and a most promising
one for dealers and dis-
tributors who handle
this nationally known
5-passenger car and one-
ton truck, both priced
at under \$800.

See announcement next week



For advance information wire or write
MOTOR AGE, 95 West Fort St., Detroit,
Michigan. Inquiries marked "Confiden-
tial" will be answered direct by MOTOR
AGE and so treated.

Announcing the KIMBALL NON SKID TIRES

Derby
TreadBar & Button
TreadBar-Grip
TreadCord Type
Tread

CORNER the TIRE BUSINESS IN YOUR TOWN

The Best Territories Are Being
Snapped Up. Write Quickly.

Are You the "Live Merchant"
of Your Town?

ARE YOU PREPARED FOR BIGGER BUSINESS?

The KIMBALL TIRE agency proposition means CAPITAL and BUSINESS to the wise dealer who gets it in his territory. KIMBALL TIRES cost you about one-half the price of the lowest priced tire manufactured and give every dealer a splendid opportunity to carry on a prosperous cut-rate tire business and also compete with all the mail order houses. The Largest Dealers in the country are taking advantage of this wonderful opportunity to get the KIMBALL TIRE agency. We allow only one dealer in a territory to handle Kimball Tires, and you may rest assured that every automobile owner will soon be purchasing KIMBALL TIRES from him. There is some extremely profitable open territory, offering remarkable opportunity to build up a big, sound and permanent business on KIMBALL TIRES. It will be to your own best interests to write immediately for territory and PREPARE for BIGGER BUSINESS.

KIMBALL NON SKID TIRES

	Non-Skid	Tubes		Non-Skid	Tubes
30x3.....	\$7.55	\$1.90	35x4.....	\$17.35	\$3.30
30x8 1/2.....	9.85	2.15	30x4.....	17.65	3.35
31x8 1/2.....	10.30	2.25	34x4 1/2.....	20.75	4.00
32x3 1/2.....	11.55	2.35	35x4 1/2.....	22.65	4.10
34x3 1/2.....	13.35	2.95	36x4 1/2.....	23.75	4.15
31x4.....	14.25	3.05	37x4 1/2.....	26.60	4.25
32x4.....	14.75	3.10	36x5.....	27.20	4.95
38x4.....	15.75	3.10	37x5.....	27.60	5.05
34x4.....	16.35	3.20			

Do you want straight side or clincher?

All orders must be accompanied by deposit of at least 25 per cent or no attention will be paid to same. In order to insure quick delivery CASHIER'S DRAFT on Chicago or New York Banks, Express or Money Orders in part or full must accompany order. Allow us first and second choice on our Cord Type, Bar and Button, Derby Tread or Bar Grip Tread tires, in order to receive immediate shipment.

When writing advertisers please mention Motor World—It identifies you

Our Guarantee Protects You

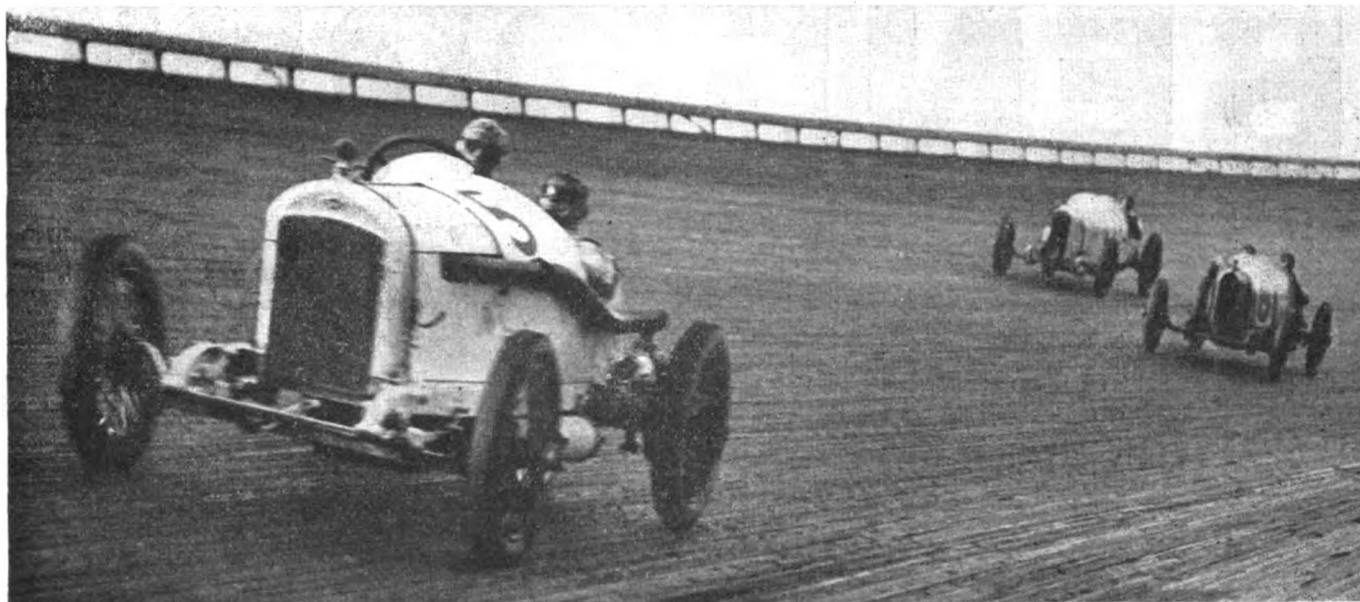
Do not hesitate about sending money in advance. WE ARE ABSOLUTELY RESPONSIBLE and GUARANTEE EVERYTHING to be as represented or your money back. As Uncle Sam does not allow fraudulent use of the mails, you are perfectly safe in sending your money in advance. Every Tire that we sell is absolutely guaranteed to be as represented or money refunded, provided the goods are returned to us within five days in the condition in which they were received.

The Kimball
TIRE & RUBBER CO.

Dept. K, 1469 Michigan Ave.
CHICAGO



"Straight-Side"
Type as pictured.
Made also in
Clincher Type.



RAJAH SPARK PLUGS HELP COOPER WIN CHICAGO SPEEDWAY RACE

Cooper, first, and Hearne, fourth, both used Rajah Spark Plugs in the big Chicago Speedway Race on June 16th.

Twelve out of 27 cars starting were Rajah equipped.

Five out of the first 7 cars finishing had

RAJAH *SPARK PLUGS*

Performance sells better than claims. Rajah Spark Plugs win resales for dealers for the same reason they win races for drivers. They perform.

Dealers should familiarize themselves with Rajah racing records. The plug that meets these exceptional tests is the plug to talk up over the counter, confident that it will make good in your customers' cars.



RAJAH TERMINALS AND ADAPTERS are furnished with Rajah Plugs so that they can be used with any car not equipped with the Rajah type of Clip Terminal. All racing cars are equipped with Rajah Terminals.

Address **RAJAH**
Bloomfield - - - N. J.

HUGHSON & MERTON, Inc.,
San Francisco, Los Angeles, Portland, Seattle
JOHN MILLEN & SON, Ltd.,
Montreal, Toronto, Winnipeg, Vancouver

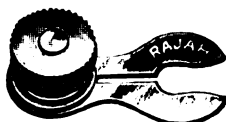
RAJAH TERMINALS



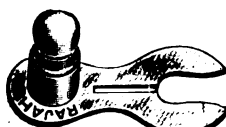
Rajah Regular Clip Terminal
Adjustable to any cable. With the extra collar supplied fits any make of plug.



Rajah Ferrule Clip Terminal
With any size ferrule required. Fits any make of plug with the extra collar supplied.

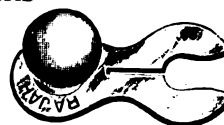


Rajah Thumb Nut Terminal
Adapter for Dodge, Hup, Hudson, Maxwell, Mitchell, Packard Twin Six, Pullman.



Rajah Stud Terminal
Adapter for Buick, Chevrolet, Oldsmobile.

RAJAH ADAPTERS



Rajah Ball Terminal
Adapter for Franklin



Rajah Packard Terminal.
Adapter for Packard 4 and 6 Cylinder

When writing advertisers please mention Motor World—It identifies you

BENFORD'S

Show the

Cash in on the beautiful appearance of this plug, Mr. Dealer.

Put a Golden Giant stand on your showcase—and you will find it will be a self-starter for many a sale—even casual customers will be interested.

A Gold-Plated Plug is a novelty that no motorist can pass—and when you show him what a splendid piece of work it is, you've taken it out of the luxury class and put it into the class of a necessity.

We gold-plate the Golden Giant to help you sell it easily—the finish is a silent salesman that tells the buyer: "Here's a great spark plug—or they wouldn't take the trouble to finish it that way."

The Making Good Is Up to US

Attached to every Golden Giant, in every one of the beautiful individual containers, is a guarantee that gives absolute insurance. The plug must give satisfaction. If the buyer finds fault we'll replace the plug without a question—without an "if" or an "and."

Push the sale of the Golden Giant in your own self-interest: There's a bigger profit in every sale than there is on any other plug. There's a readier sale because of its attractive appearance. And there are more repeat sales because of the perfect efficiency of the plug.

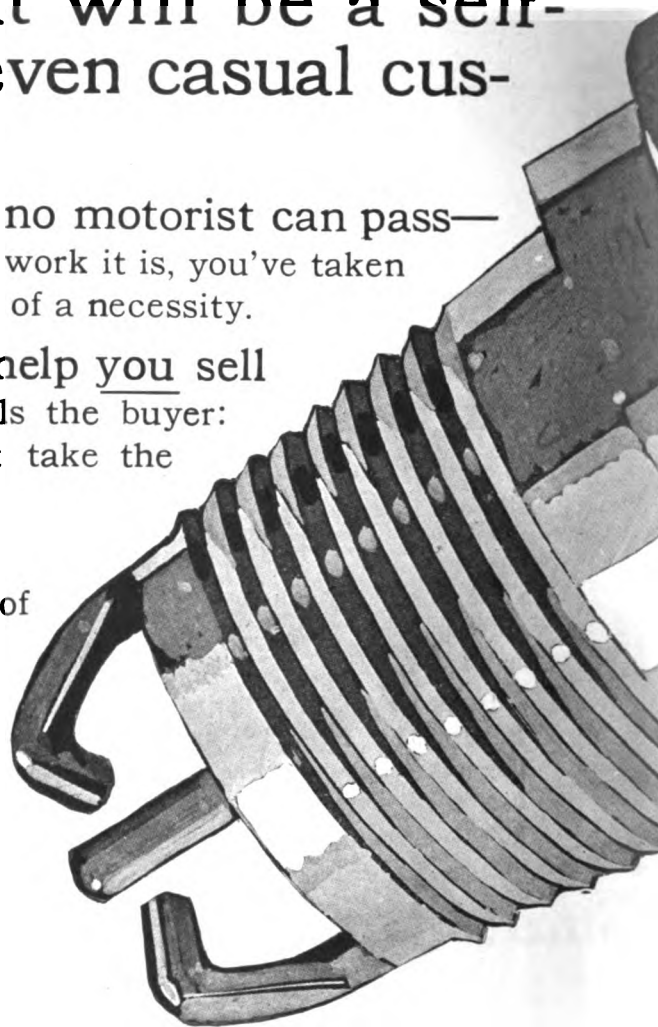
At the same time the Golden Giant gives your customer more satisfaction and more value for his money. That kind of selling service makes customers.

Send Your Jobber—To-Day—an order for our 50 Plug Assortment, and get our handsome, Sales-Making Display Cabinet.

BENFORD MFG. CO., Mt. Vernon, N. Y.

Fifteen Years of Spark Plug Success

When writing advertisers please mention Motor World—it identifies you



GOLDEN GIANT

Golden Giant



**Read this
Guarantee** →

\$1.00
Each

It means that at last you can buy with absolute insurance.
You cannot possibly lose.

Sold by Forty Thousand Dealers

When writing advertisers please mention Motor World—It identifies you

ENDURING

BEAUTY



HOUK

QUICK CHANGE

WIRE WHEELS

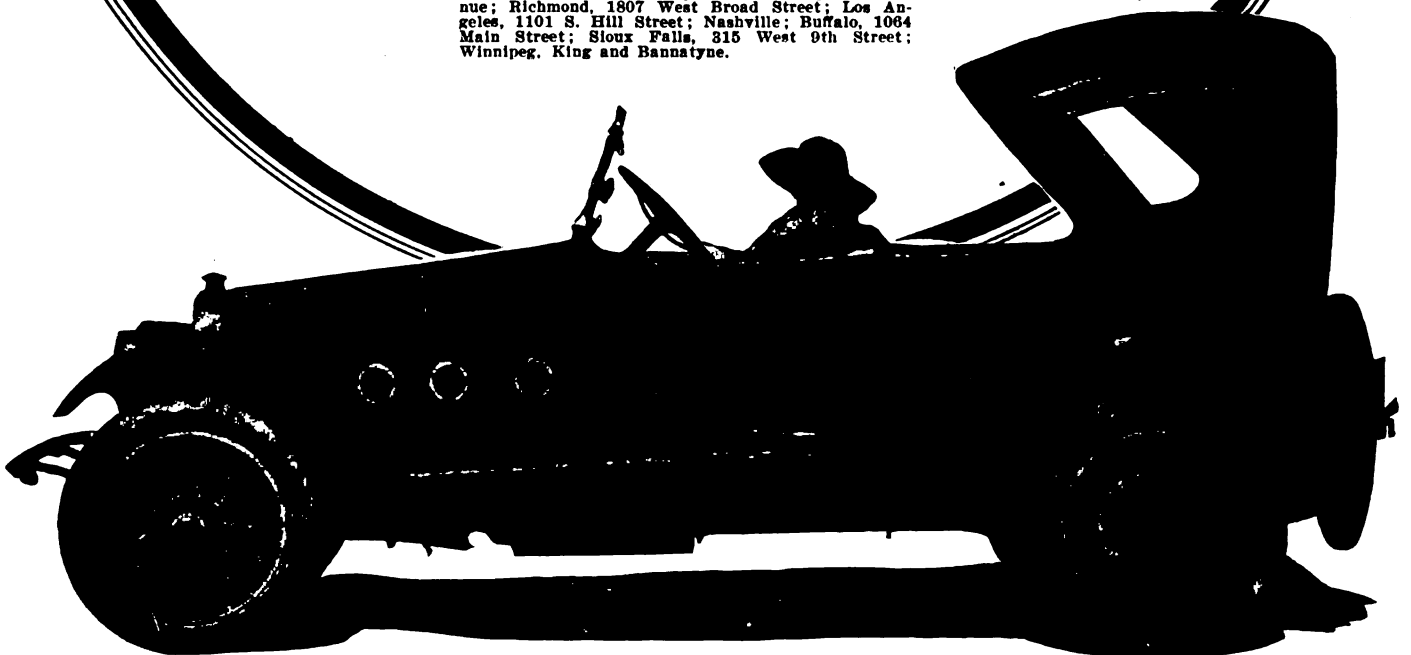
Houk Wire Wheels are selected to add the finishing touch to custom-made bodies of grace and distinction.

They are among the very few accessories that add strength, endurance and ease of manipulation, while harmonizing so perfectly with beautiful lines and unusually attractive embellishments.

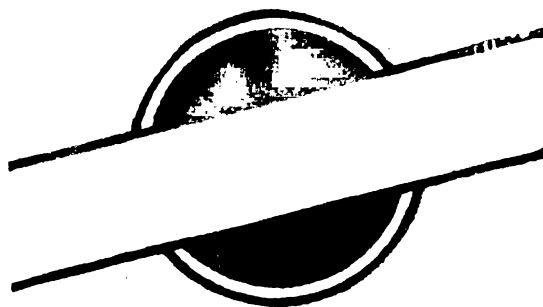
Houk Manufacturing Co.
Buffalo New York

Branch Offices and Service Stations

New York, 1792 Broadway; Chicago, 2337 Michigan Avenue, South; Philadelphia, 328 North Broad Street; Detroit, 786 Woodward Avenue; Boston, 1092 Commonwealth Avenue; San Francisco, 1243 Van Ness Avenue; Pittsburgh, 600 Grant Boulevard; St. Louis, 3414 Lindell Avenue; Dallas, 2029 Commerce Street; Minneapolis, 918 Marquette Avenue; Richmond, 1807 West Broad Street; Los Angeles, 1101 S. Hill Street; Nashville, Buffalo, 1064 Main Street; Sioux Falls, 315 West 9th Street; Winnipeg, King and Bannatyne.

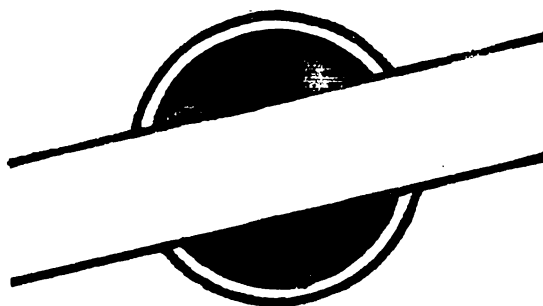


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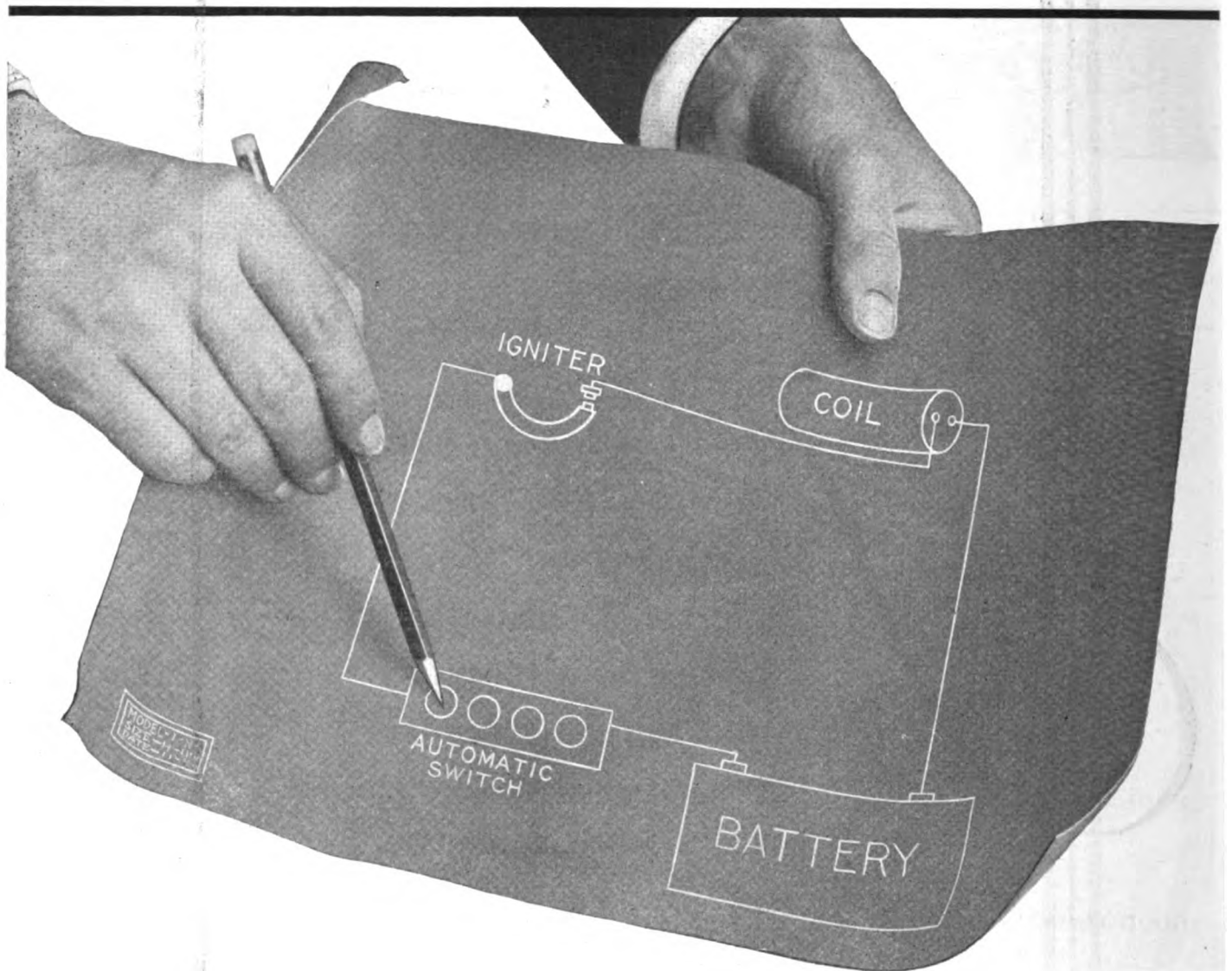


There are good
dealers in towns of
25,000 population
who with this line
have the chance to
become *big distributors*
in towns of over 100,000.
Possibly you may be
hiding your light under
a bushel.

See announcement next week



For advance information wire or write
MOTOR AGE, 95 West Fort St., Detroit,
Michigan. Inquiries marked "Confiden-
tial" will be answered direct by MOTOR
AGE, and so treated.



Simplest Electrically

CONNECTICUT AUTOMATIC IGNITION makes use of the simplest electrical circuit ever devised. There is nothing to impede the free flow of current through it—nothing to constrict the natural efficiency of the system. The protection afforded by the Automatic Switch obviates the need of trouble-making makeshifts.

C AUTOMATIC IGNITION CONNECTICUT

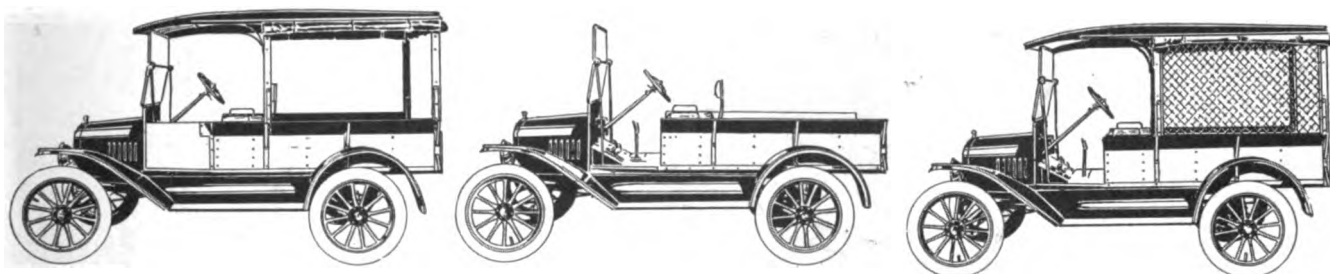
The device shown here appears on the ignition control button of the Automatic Switch and identifies Connecticut Automatic Ignition. This is the device of Efficiency.



CONNECTICUT TELEPHONE & ELECTRIC COMPANY
Meriden Conn.

When writing advertisers please mention Motor World—it identifies you

BABCOCK



What Do You Want In a Commercial Body?

ADAPTABILITY?

Babcock Bodies offer you **FOUR BODIES IN ONE**. Built on the unit plan, all parts are standardized and each body is quickly and easily transformable to meet any kind of service or any condition of weather.

ENDURANCE?

Babcock Bodies are built of choicest native hard woods, of which we are fortunate in having a well-seasoned stock cut from neighboring timber lands, and in each is incorporated a **SKELETON OF STEEL** (patented), which combines strength with lightness to an unequalled degree. They outlast ordinary bodies by years of service.

GOOD LOOKS?

Babcock Bodies are the very cream of the Commercial Body field. The beauty of their finish is more than skin deep. They receive 10 to 12 separate coats and rubbings, and the side panels of **VEHISOTE** cannot crack, check or blister.

LOW UPKEEP?

Babcock Bodies never require hospital treatment. In case of accident the **BABCOCK UNIT CONSTRUCTION** makes it possible to replace any broken part inexpensively and immediately.

QUICK DELIVERY?

At the Babcock plant delays in shipping are unknown. Built from stock units turned out in 1000 lots, factory costs are cut to a minimum and the largest orders are promptly and unfailingly filled.

COST?

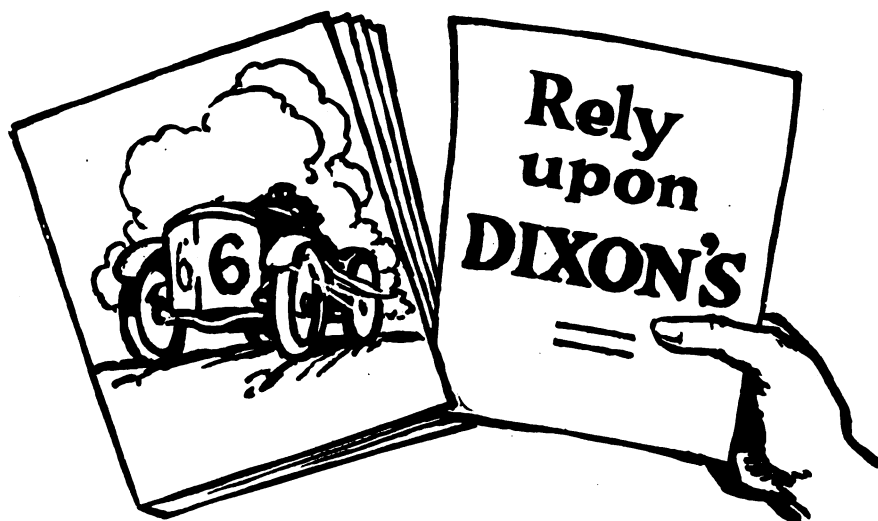
BABCOCK Bodies represent **LOWEST FINAL COST**. There is more dollar-for-dollar value in a Babcock Body **FROM YOUR OWN STANDPOINT** than in any other commercial body you could possibly obtain.

THE GOVERNMENT specifies **BABCOCK STEEL CONSTRUCTION**. If you don't know why, our handsome catalogue will show you. *Write for it.*

H.H. BABCOCK COMPANY
WATERTOWN, FOUNDED 1845 NEW YORK.

COMMERCIAL BODIES

When writing advertisers please mention Motor World—It identifies you



Take a Leaf From the Racers' Book

Once more Dixon's demonstrate their dependability. Earl Cooper's victory in the Chicago 250-mile Derby was won in a Dixon-lubricated Stutz. Another feather in the cap of

DIXON'S GRAPHITE Automobile LUBRICANTS

The drivers demand the very best for their cars and they are in a position to get it. The superior lubrication is the reason for their choice of Dixon's, and the repeated "Dixon" victories are proof of that superiority.

Dixon advertising is bringing these triumphs to the attention of millions of motorists—making new friends for Dixon's, more customers for dealers.

Place your reliance in Dixon's for increased and steady business of the better kind, just as the speed kings do for better lubrication, and just as your customers do when they know the service Dixon's give.

Write to us for Dixon's Dealer's Deal.

JOSEPH DIXON CRUCIBLE COMPANY

JERSEY CITY, N. J.

Established 1827





Within Easy Reach

WHY shouldn't dealers expect unusual service from a distributor who has been serving dealers well and faithfully for eighteen years—a distributor backed by resources of more than \$7,000,000?

Dealers who buy from us **DO** expect it! They expect and *receive* all of the advantages that come from vast stocks, a trained, experienced organization—and a uniform policy of Fair Treatment. Therefore they keep their Gibson catalog within easy reach.

Gibson service is well worth while when business conditions are normal. But when trade conditions are **UNUSUAL** there is certainly something at Gibson's that will overcome many a difficulty for dealers.

Let the Gibson Company work with you—NOW! Get our organization behind yours. It will be good for both of us. Send today for our 1917 Catalog, and let us put you on our permanent mailing list. Free to any legitimate accessory dealer or garage operator—anywhere. Ask for Catalog G-2. Let's get together!

THE GIBSON COMPANY INDIANAPOLIS

Motor Car Accessories and Tires
Shop Equipment and Electrical Supplies

"Gibson Serves the World"

When writing advertisers please mention Motor World—it identifies

What We Claim for

Tiolene

"The Motor Oil That's Clean"

You Can Prove

That TIOLENE in your motor will give you a maximum power delivery with a minimum wear on parts.

That TIOLENE will give you the longest service in miles per gallon.

That TIOLENE will give a minimum carbon deposit.

That TIOLENE is free from acids, alkalies and other corrosive and harmful substances.

TIOLENE is carefully refined and filtered and has just those qualities, gravity, viscosity, flash test, etc., which best adapt it for efficient service in your motor.

We Positively Guarantee Tiolene

Investigate TIOLENE. It means longer life to your motor and more efficient transmission of power.

TIOLENE is sold in one and five gallon cans, also in the 55 or 31 gallon drums. The steel drum is a complimentary feature with TIOLENE.

This method of purchase protects your motor from the use of inferior oils "bought in a hurry."

Write now for full information.

Tiona Oil Company
BINGHAMTON, N. Y.

TIONA OIL COMPANY,
Binghamton, N. Y.

Kindly send full information and prices on Tiolene.

Name.....

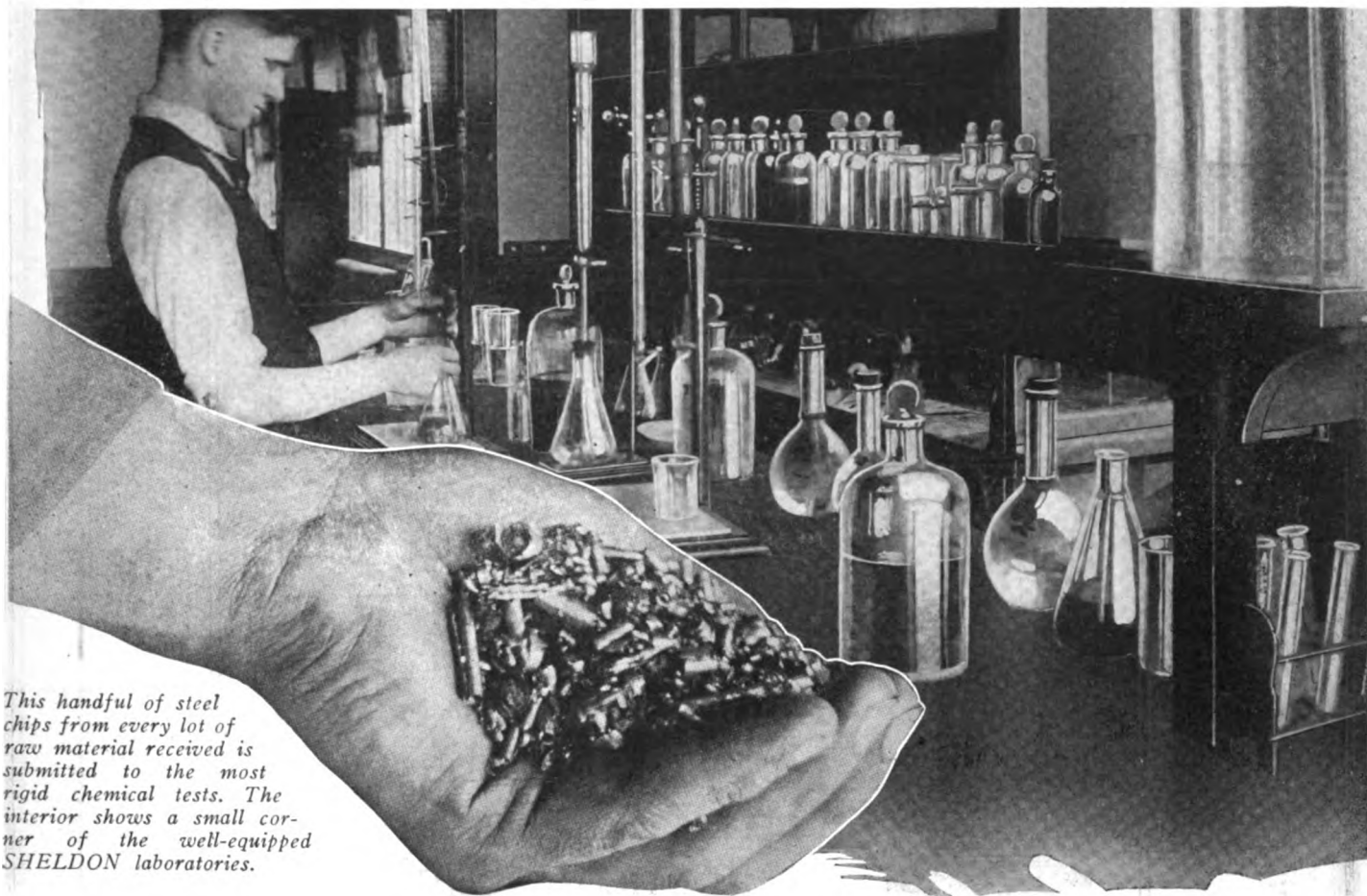
Address.....

.....

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When writing advertisers please mention Motor World—It identifies you

-PRECAUTION-



This handful of steel chips from every lot of raw material received is submitted to the most rigid chemical tests. The interior shows a small corner of the well-equipped SHELDON laboratories.

Sheldon Engineers take no chances with the quality of the steel they use.

Every lot of steel received is subjected to a triple test of quality.

Sheldon Steel must measure up to the high standards we have set for it. Each shipment must contain the right elements

in exactly the right proportions necessary for hardness, toughness, strength, shock resistance and fatigue resistance, or it is sent back no matter whether it is ten pounds or ten carloads.

On this rigorous selection of material is based the success of Sheldon products. For fifty years we have worked with the QUALITY idea always paramount and have built a reputation for which we feel justly proud.

It is to safeguard this reputation and to safeguard the reputations of manufacturers using Sheldon products and depending upon us to maintain our standard of quality regardless of conditions in the steel market, that Sheldon engineers require three careful tests, instead of one, of all raw materials entering the Sheldon plant.

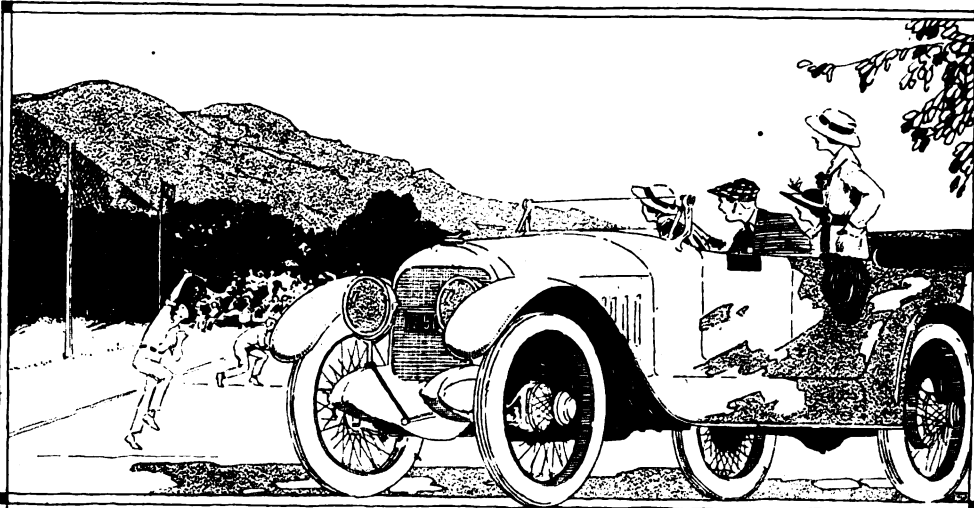
Winner of the Gold Medal at the Panama-Pacific International Exposition

SHELDON AXLE & SPRING CO., Wilkes-Barre, Pa.

Makers of Springs and Axles for Heavy Duty Service for over Fifty Years

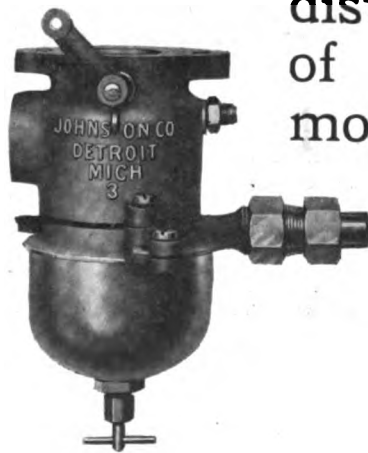


When writing advertisers please mention Motor World—It identifies you



JOHNSON CARBURETOR

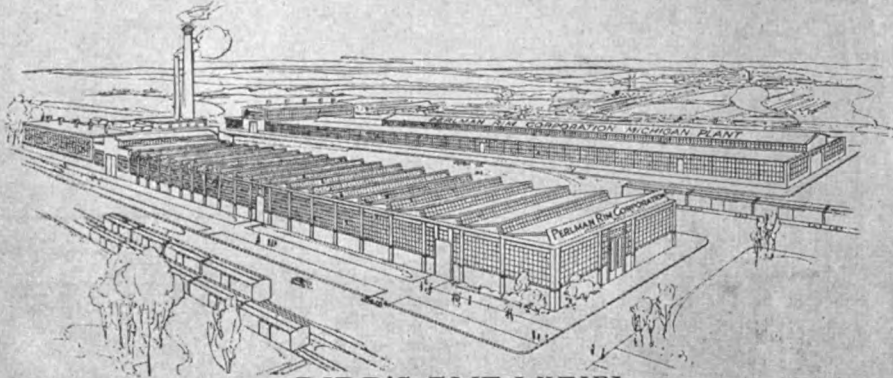
Action, real power and
pick-up punch, is a
distinguishing mark
of Johnson equipped
motors : : : : :



JOHNSON COMPANY

MAKERS OF SUPERFINE INSTRUMENTS OF CARBURETION
DETROIT MICHIGAN

Where Perlman



BIRD'S EYE VIEW
of the
PERLMAN RIM CORPORATION
JACKSON, MICHIGAN, PLANT

Demountable Rims *are made*



The largest and only exclusive demountable rim plant in the world, covering five acres. The mechanical equipment is new and up to date, ensuring volume and quality production. Producing five thousand sets of demountable rims every working day. Enough to equip over one million, five hundred thousand (1,500,000) motor cars annually. Prompt shipments of demountable rims in any desired size and quantity.

Perlman S. A. E. Bands and S. A. E. Steel Rims—Are U. S. Army 1½ and 3-Ton Military Truck Standards—For S. A. E. Demountable Solid Tires—Single and Double.

We solicit your demountable rim business, inviting correspondence.

PERLMAN RIM CORPORATION

The Magic Box

With these wonder-working Sioux Standard Valve Tools you can easily and accurately grind or cut valves and reface valve seats in one-twentieth the time required by the old method and make a fat profit on every job. A few jobs pay for the set.



Price \$22.50 (Discount to dealers). Sold by all live jobbers. Manufactured only by
ALBERTSON & COMPANY **Sioux City, Iowa**

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PHILBRIN

HIGH FREQUENCY IGNITION FOR FORDS

IGNITION for FORDS



*Makes the FORD
a BETTER Car*

Has your Ford lost its pep? Is it sluggish? Does it labor on the hills? The chances are, your ignition is at fault.

PHILBRIN "High Frequency" ignition has been especially designed for the Ford engine. It needs no dry cells or storage batteries.

It takes its current from the Ford magneto. A selective switch provides for the use of batteries, however, should you wish to have two independent sources of current instead of one.

PHILBRIN Ignition for Fords gives more power from less gasoline. It gives more speed, amazing flexibility and unfailing ignition at all times and under all running conditions.

On the hills—in crowded traffic—on the straight-a-way, you can do "stunts" with your Ford you never before thought possible.

Easy to install. Write for more complete information of this and other PHILBRIN Ignition Systems.

PHILIPS-BRINTON COMPANY

503 S. BROAD ST., KENNETT SQUARE, PA.

Sales Office: 1118 Widener Bldg., Philadelphia, Pa.

DEALERS: There are a million and a half people, right now, who own Fords—with more to come.

How many of them, do you think, will say "I don't need better ignition"?

You will find a lot of mighty fine prospects for better ignition.

You will find a big number who will want PHILBRIN "High Frequency" Ignition.

It is the one ignition system *specially* built for the Ford engine.

It is the one system of battery ignition that needs no battery or dry cells to operate it. *It gets its current from the Ford magneto itself.*

Instead of a single spark it delivers a continuous "shower of sparks" of remarkable intensity to each cylinder in its firing order.

Consequently it makes starting easy.

It cuts down gasoline consumption.

It adds **POWER** and **SPEED**. It increases **FLEXIBILITY**. It enables running on "high" at very slow speeds—a tremendous advantage in crowded traffic.

It permits accelerating from extremely slow speeds to maximum in a twinkling.

No trouble to install. The system is sold complete, with all necessary brackets and wires ready for mounting. List price, \$27.50. *We suggest that you write us or your jobber at once to avoid disappointments in deliveries.*

Insurance for \$8

Look at These FEATURES

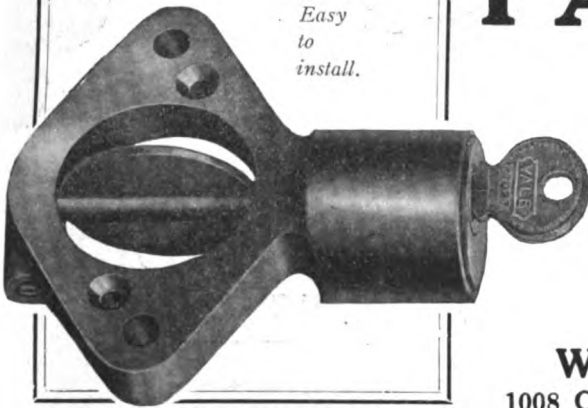
The only really safe lock that meets all police and fire regulations.

Pushable, steerable, but not drivable when locked.

Cannot be wired around, nor can car be started with what gasoline is in the carburetor.

Lasts forever—never out of order.

Easy to install.



That is—certainty that your car will not be stolen.

This is a certainty that other locks—ignition and gasoline feed locks—cannot give you. Auto thieves are thoroughly familiar with them and can easily make short work of them.

PATENTED PARKIN MANIFOLD LOCK

The Parkin Manifold Lock is supplied to fit all cars. Give make and size of carburetor when ordering.

Special sizes for Ford and Chevrolet, including new intake manifold.....

\$10

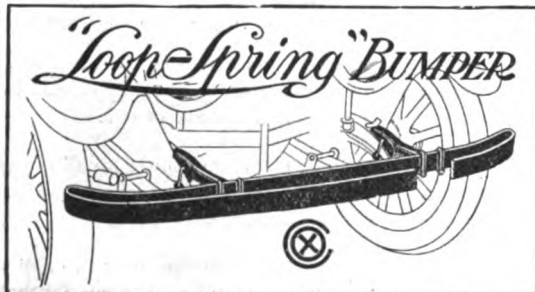
The Manifold Lock is too much for the craftiest thief. It positively cannot be picked, broken or circumvented.

It is simple, and you can install it in a few minutes between carburetor and intake manifold. When locked it absolutely prevents the passage of any mixture from carburetor to cylinders.

Get this *real* lock today and be certain.

Dealers and Jobbers: Write at once for proposition. This is something you should stock without delay.

W. S. WHITEHEAD & COMPANY
1008 Commercial Trust Bldg., PHILADELPHIA, PA.



COX The "Loop-Spring" Bumper with the "Splash- Pan" Bracket

adapted to Chalmers, Hupmobile, White, Mitchell, and other cars whose extended splash pans make bumper attachment difficult.

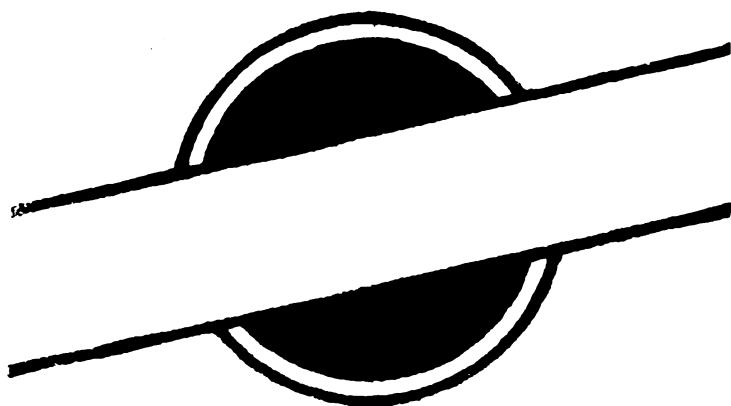
The great value of this bracket is that it can be attached to these cars by means of a special hook and bolt without disfiguring the splash-pan in any way.

The "Loop-Spring" Bumper Rail is twice as strong and twice as resilient as ordinary spring bumpers. The spring is in the form of a continuous loop of 5/16" high grade spring steel, giving unusual shock absorbing qualities. Prices are \$10 and \$12, according to finish. Send for our catalog of full Cox Bumper line. They are worth knowing about.

COX BRASS MANUFACTURING CO.
Home Office and Factory, Albany, N. Y.



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American Extravagance

is giving away to American thrift. More value per dollar expended is being exacted than ever before. This company's tremendous production guarantees quantity price together with quality value, consequently quantity sales with quantity profits.

See announcement next week

For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.

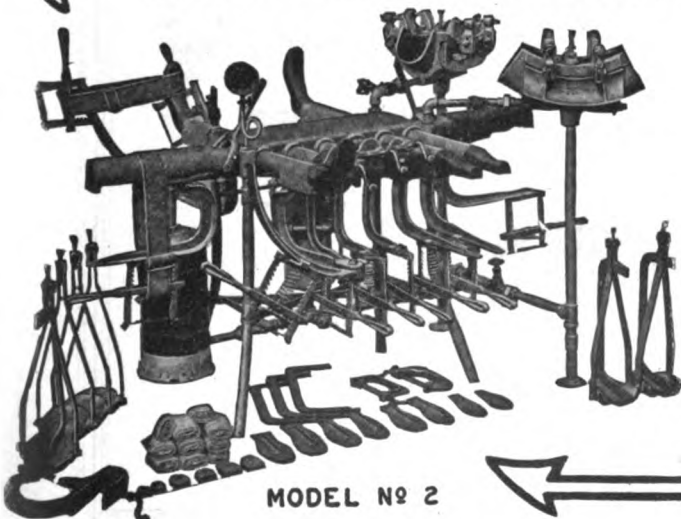
JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY
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AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.



MODEL NO 2

THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER

Is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue.

THE ARTHUR VULCANIZING MACHINE COMPANY

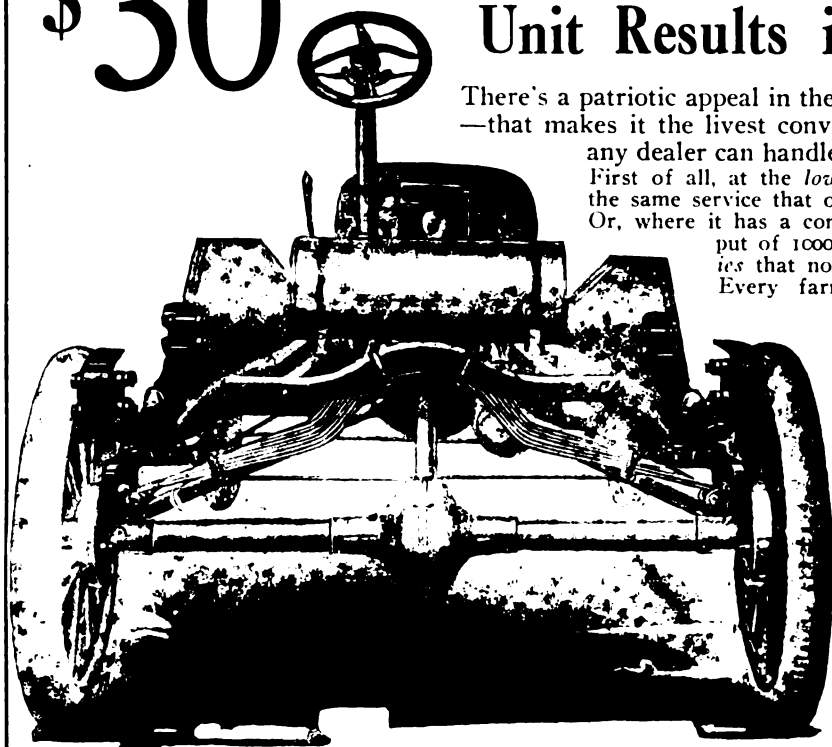
Grissold St.

Warren, Ohio

SEP	OCTOBER	NOVEMBER	DECEMBER
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When writing advertisers please mention Motor World—It identifies you

\$30 For an OLSON 1000 lb. Capacity Truck Unit Results in Big Profits



There's a patriotic appeal in the OLSON Unit—no matter what design—that makes it the livest converting unit, the quickest big seller that any dealer can handle.

First of all, at the *lowest possible price*, the OLSON Unit offers the same service that others offer for many times as much money. Or, where it has a competitor in the class of price, OLSON output of 1000 sets a day gives it an advantage in *deliveries* that no price can overcome.

Every farmer, every merchant who is affected by war business—and thousands of others who feel the effect of increased demand, are live OLSON Unit prospects. All the way from 1000-lb. to ton capacity—there is an OLSON Unit ready. The biggest opportunity dealers have ever known is just now opening up. Write for free booklet describing full line of OLSON Units and Extensions. Thousands in profits are in the balance.

Style	Description	List Price
No. 1000—3-leaf	1000 lbs. capacity..	\$30.00
No. 1250—4-leaf	1250 lbs. capacity..	32.50
No. 1500—5-leaf	1500 lbs. capacity..	35.00
No. 1750—7-leaf	1750 lbs. capacity..	40.00

Swedish Crucible Steel Co.

Factories:
Detroit, Mich., Windsor, Ont., Can.
Chicago Branch, 1344 Michigan Ave.
Address, Wheel Dept.



It Doesn't Matter --

what type of container your oil, gasoline, light paint or turpentine comes in—you can get at it right away with a

ROTHWEILER PUMP

It is universally adjustable to suit any container from an up-ended barrel to a shallow metal drum—and it will get the last drop out of it.

The Rothweiler Pump is made right. It works easily, smoothly and quickly, pumping fully a quart at a stroke.

It is made of the best materials, and is carefully and accurately constructed and finished.

It will not drip at the spout or leak at the plunger rod insertion. The valves are accurately seated and leak-proof.

It is the best all-around pump you can get for your garage or shop.

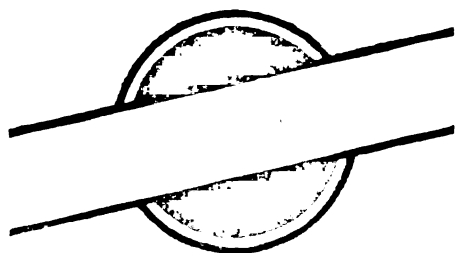
It is one of the biggest values for \$6.50 you ever got. Freight charges prepaid.

After July 1st it will be necessary to raise the price to \$7.50. Order at once.

R O T H W E I L E R & C O .
SEATTLE WASH.

80% of all cars are used partly or wholly for business. Economy is demanded of the business car. Big gasoline, oil and tire bills show up disagreeably in the expense record. The light weight, big gasoline and tire mileage of this company's cars is a forcible sales factor.

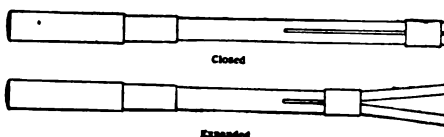
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For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.

Time Is Money and These Tools Will Save Your Time

Jiffy Bushing Extractor for Fords



Removes

Steering Knuckle
Spindle Arm
Spring

BUSHINGS
in a JIFFY

Made of Tool Steel and nicely finished.

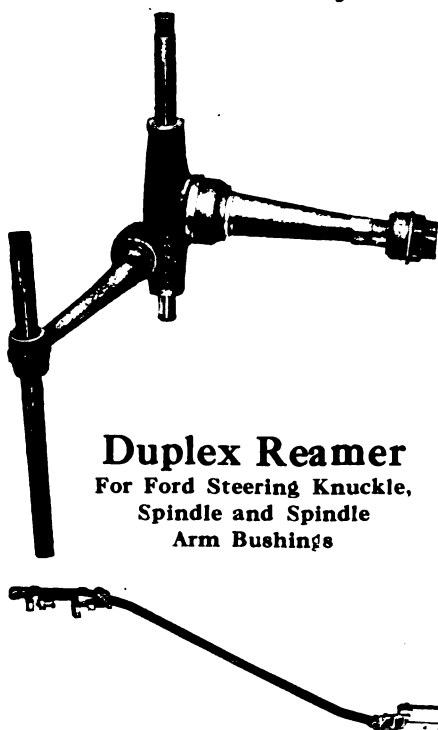
Indispensable to the repairman or the owner who does his own work.

When removing Steering Knuckle Bushings it is not necessary to remove wheel.

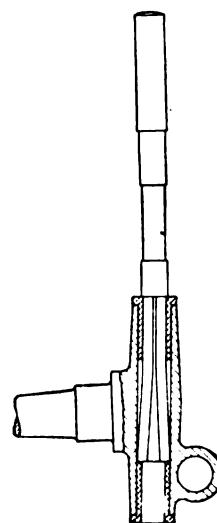
Pays for itself in a few minutes.

Towing Device

Simple, Strong and Safe. Positively Steers Following Car, Which Can Be Attached in ONE MINUTE.



Duplex Reamer
For Ford Steering Knuckle,
Spindle and Spindle
Arm Bushings



THE G. H. DYER CO.

Write for General
Catalogue

Cambridge, Mass.

When writing advertisers please mention Motor World—It identifies you

BILL AUTOMATIC SPARK RETARDER

Insurance against suffering and loss by positive prevention of backfiring when cranking a Ford Motor.

Protects your person and your bank account.

Eliminates danger and saves time and inconvenience by automatically retarding the spark to a point of absolute safety for starting and instantly advancing it to the normal running point at the first power stroke of the motor.

No owner of a Ford Car, whether it be driven by himself, his family or an employee, can afford to be without a Bill Automatic Spark Retarder.

Every dealer who appreciates an easy selling and profitable accessory will increase his business and his bank account by selling it.

Write us to-day or see the dealer.

BILL Mfg. Co., La Porte, Ind.

Chicago Distributors: GRAY HEATH CO., 1440 Michigan Ave., Chicago, Ill.
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ELCAR

ELCAR

The Elcar at \$845 Does Its Own Talking

A Few Elcar Specifications

Wheel Base—As long as some cars selling up to \$3,000 and more—115 in.
Motor—4-cylinder; long stroke; high speed; 34.7 h. p. at 1,800 r. p. m.
Fuel Supply—Stewart vacuum system.
Ignition—Delco automatic spark advance with manual control.
Starting and Lighting—Dyneto two-unit; double-bulb headlights; Willard storage battery.
Clutch—Dry multiple disk—seven plates, steel on Raybestos.
Rear Axle—Full-floating with roller bearings at each end of wheel hubs.
Differential—Spiral bevel driving gears, with roller main bearings and ball thrust bearings.
Brakes—Internal and external, two inches wide on 12-inch drums.

MODEL "D"
5 Passenger Touring Car, \$845

Looks better than its price, and is just as good as it looks. A car of distinctive beauty, well designed, well built, well finished—a car in which quality speaks right out.

Three Models at One Price

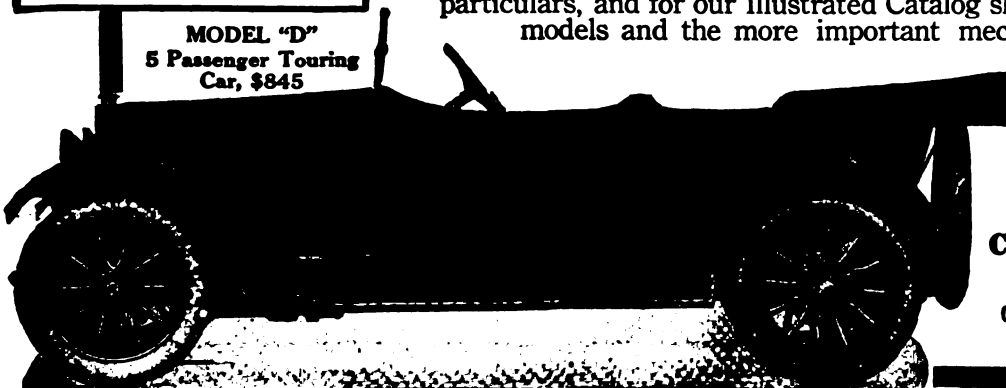
Five Passenger Touring Car Four Passenger Touring-Roadster
Two Passenger Roadster

Secure it for your territory

We want to place our proposition before live dealers in territory not already assigned. Write us for particulars, and for our Illustrated Catalog showing all ELCAR models and the more important mechanical parts, and describing the construction of the ELCAR even down to its small details.

Elkhart Carriage & Motor Car Company

C 779 Beardsley Avenue
Elkhart, Indiana



When writing advertisers please mention Motor World—It identifies you



To the discriminating buyer who knows *quality* the bumper to meet his requirements is found in the

HALLADAY LINE

No matter what the make or model of a car, there is a

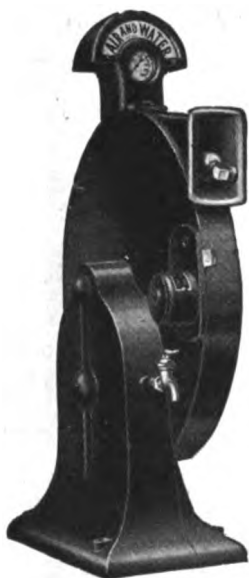
Halladay Bumper

to fit it; not by makeshift or adjustment, but because it is made for that particular car.

Wise dealers, see your jobber, or write us, and we will show how you can satisfy all customers without a great investment in models and parts.

L. P. HALLADAY COMPANY, Streator, Ill.

DISTRIBUTORS: Asch & Co., 16-24 W. 61st St., New York City; E. L. Thompson Co., 817 Boylston St., Boston, Mass.; Gray-Heath Co., 1440 Michigan Ave., Chicago, Ill. SOUTHERN DISTRIBUTORS: Sanford Brothers, Chattanooga, Tenn.; Hughson & Morton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.



ECO Prepayment Automatic Air Station

—collects 5c. in advance for air service. Pumps all 4 tires for a nickel. Furnishes water for radiator free. Electrically lighted at night. A constant source of saving and profit. TRY ONE FOR 30 DAYS. ECO always pays.

Patrons Use Air Stations for SERVICE — Not for Saving

Did you ever stop to think that the man—or woman—who drives up to your curb for air doesn't come to save money, but to get *service*? Because that is exactly what he—or she—does. He comes to save his back—not his pocket book; to preserve his tires—not his carfare.

If you give these air patrons what they come for—good, reliable service—with pressure always high enough to do the work and do it right, 5c. doesn't make any difference to them. In fact, they prefer to pay a nickel for *ECO* efficiency, rather than submit to inferior service that in reality is worth less than the nothing they pay for it.

ECO Perfect Service at 5c.

Pleases Users Better than Bad Service Free

ECO users are taking in as much as \$1 a day from gratified users of ECO service. The returns from ECO Prepayment Service make air stations a *source of profit* instead of a dead loss. Modern business knows no place for departments that show dead loss.

Write for 30-day Trial Proposition. ECO Always Pays Out.

Manufactured by Western Mfg. Co., Oskaloosa, Ia.

ELECTRIC APPLIANCE COMPANY

CHICAGO

SAN FRANCISCO

DALLAS

NEW ORLEANS



It's the Invincible "Class" that Insures Demand—

No matter how luxurious the high-priced car—no matter how modest the low-priced car, every driver and passenger prizes that superior touch of smartness insured with Invincible Seat Covers.

Invincible

Seat Covers

A wide choice of stylish, serviceable materials; cut for as stylish a fit as is required in clothes; genuine leather fabric bindings; genuine leather arm rests.

Every Invincible product is the handiwork of craftsmen who understand their work and complete it that the user may be satisfied. This line of products is without superior on the market today.

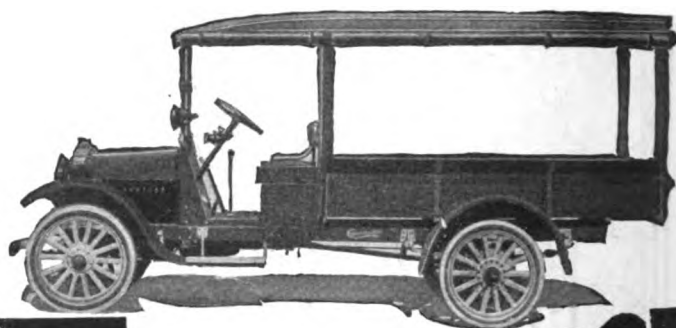
SEAT COVERS
TIRE COVERS
CURTAIN BAGS

CURTAIN LIGHTS
AUTO ROBES
WASH APRONS

Have you an Invincible catalog? You should!

**The Peters & Herron
Dash Co.**

77 Gift St. Columbus, Ohio



Commerce
TRUCKS
1 TON CAP
**A Year Ahead
of Other Trucks**

The only truck having everything
necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.
Continental Motor—Torbenesen Rear Axle—Detroit Steel Products Company Springs. Price—1350 f.o.b. Detroit.

**The Commerce Motor Car Company
DETROIT MICHIGAN**

*W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.*

Hotel St. Andrew

72nd Street and Broadway
New York

250 Rooms — All Outside
RESTAURANT A LA CARTE
POPULAR PRICES

Subway Express Station at the door. Location finest in City. One Block from Riverside Drive and Central Park. Faces the Hudson River.

Rooms with Private Bath \$2.00 per day

Rooms with Running Water
adjacent to bath . . 1.50 per day

Parlor Bedroom and Bath 4.00 per day

A satisfied patron is our best advertisement

Descriptive booklets giving detailed information
furnished on request.

HARRY J. VEITCH, Managing Director



BOWSER
ESTABLISHED 1888

**STOP
THAT
WASTE!**

**WITH
THE BOWSER**
ESTABLISHED 1888

**Oil and Gasoline
Storage System**

It saves waste and time. Prevents careless handling. Protects oils from deterioration and shrinkage, and makes a profit that is otherwise lost. *Write Today.*

S. F. BOWSER & CO., Inc.
Sales Offices in all Centers **Fort Wayne, Ind., U. S. A.** Representatives Everywhere

**FREE TOURING
MAPS**



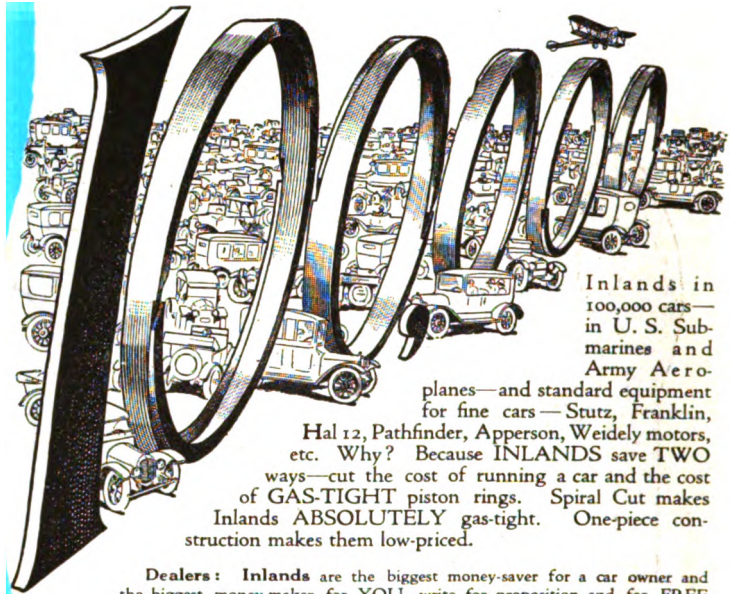
**CHECK MAPS DESIRED
AND MAIL TO
GULF REFINING COMPANY
DEPT. 1879 PITTSBURGH, PA.**

<input type="checkbox"/> Middle West	<input type="checkbox"/> Pittsburgh-Buffalo
<input type="checkbox"/> Transcontinental	<input type="checkbox"/> Southern States
<input type="checkbox"/> New England	<input type="checkbox"/> Pennsylvania
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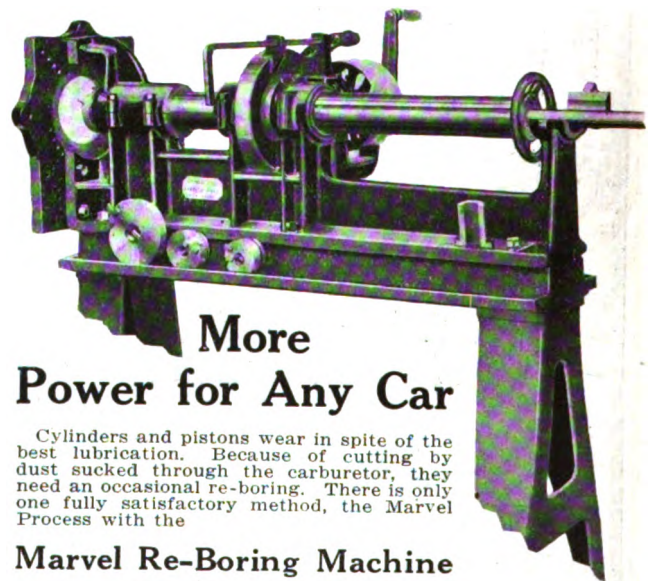


Inlands in 100,000 cars—in U. S. Submarines and Army Aeroplanes—and standard equipment for fine cars—Stutz, Franklin, Hal 12, Pathfinder, Apperson, Weidely motors, etc. Why? Because INLANDS save TWO ways—cut the cost of running a car and the cost of GAS-TIGHT piston rings. Spiral Cut makes Inlands ABSOLUTELY gas-tight. One-piece construction makes them low-priced.

Dealers: Inlands are the biggest money-saver for a car owner and the biggest money-maker for YOU—write for proposition and for FREE Piston Ring chart, showing sizes for all makes and models of cars.

Inland Machine Works
815 Mound St., St. Louis, Mo.

INLAND
1 PIECE PISTON RING



More Power for Any Car

Cylinders and pistons wear in spite of the best lubrication. Because of cutting by dust sucked through the carburetor, they need an occasional re-boring. There is only one fully satisfactory method, the Marvel Process with the

Marvel Re-Boring Machine

This machine is made for this purpose and no other. It will bore any cylinder, or block of cylinders accurately. It adjusts to .002 of an inch. It is so simple and accurate that any mechanic can do satisfactory re-boring with it. There is no danger of ruining the cylinders. It is fast, much faster than any other method and the work is done better, more accurately.

Garage Owners! A Marvel Re-Boring Machine in your shop will open a splendid source of profitable new business. It will be a big aid in turning your shop from a losing to a profitable investment. Write for our Marvel plan. It means profits for you.

MARVEL MACHINERY CO.
Minneapolis Minn.



Selden Trucks

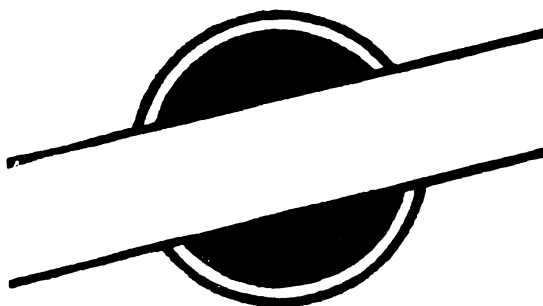
"After a service of 8,000 miles, our Selden Truck is in very excellent condition—showing little or no wear in any way. It has run all this year without a hitch—given us splendid satisfaction," writes the head of a large plumbing supplies business in western New York.

Under heavy loads, such as are customary in the plumbing supplies business, this Selden Truck has demonstrated again the wearing qualities of Selden "IN-BUILT QUALITY."

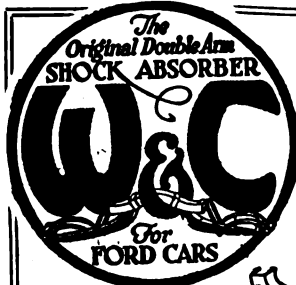
DEALERS: Write for Territory
Selden Truck Sales Co.
 Rochester, N. Y., U. S. A.

5,000 dealers
 and distributors
 who are now
 handling non-com-
 peting products,
 should with the ad-
 dition of this car and
 truck to their line be
 able to multiply their
sales opportunities
 and increase materi-
 ally their *earning*
capacity.

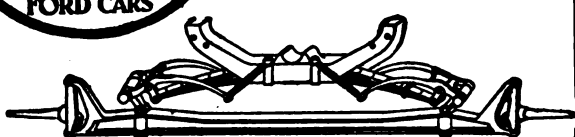
See announcement next week



For advance information wire or write
 MOTOR AGE, 95 West Fort St., Detroit,
 Michigan. Inquiries marked "Confiden-
 tial" will be answered direct by MOTOR
 AGE and so treated.



\$10 Per Set of 4



W & C

The Original Double-Arm Shock Absorber
Makes As Much Difference As
Pneumatic Tires on Fords

Installing a set of W & C Double-Arm Shock Absorbers is as good as substituting pneumatics for a set of hard rubber tires. Their resiliency reacts to the immediate advantage of both passengers and mechanism.

They are as desirable on Ford cars as air-filled tires. You know how desirable that is.

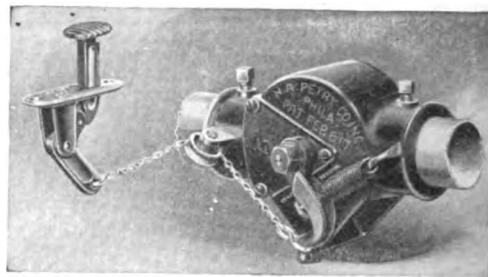
Ask your dealer to-day—and say "W & C."

Some territory still open that needs live dealers. **WRITE.**

P. H. WEBBER COMPANY
 HOOPESTON, ILLINOIS

When writing advertisers please mention Motor World—It identifies you

For Your FORD



The PETRY CUT-OUT

Planned and constructed with the same thoroughness as the Petry Cut-out for high priced cars.

Quickly and easily applied and stays permanently **where it belongs**. Gas tight joints. Adjustable spring well away from all heat. No back pressure. No flutter to the valve. No strain in exhaust pipe. Gases are discharged through a flaring opening which intensifies sound, facilitating tuning up of motor.

Sold, complete with pedal and chain, for \$3.50. Ask to see the Petry at your dealer's.

N. A. Petry Company, Inc.
1307 Race Street Philadelphia

DISTRIBUTORS:

Geo. L. Holmes, 1733 Broadway, New York City. Grey-Heath Co., 1440 Michigan Ave., Chicago, Ill.
Hughson & Merton, Inc., San Francisco, Cal.; Los Angeles, Cal.; Portland, Ore.; Seattle, Wash.

To Jobbers and Dealers:

The Petry Cut-out is a quick seller and a sure trade maker. Write or wire us at once. Handsome working counter display sent with order for twelve assorted sizes.



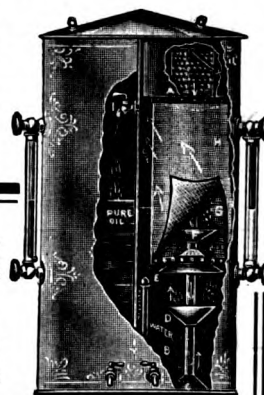
Bigger Profits
For
Automobile
Dealers

See announcement next week

For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.

PAID FOR ITSELF Many Times Over—

"The SIMS Oil Filter we have is doing a great deal of good. It saves a lot of oil that otherwise would go to waste, and has paid for itself many times over since we have had it."—Jno. Burton Arbuckle, Automobiles & Farm Tools, Erie, Pa.
April 24, 1917.



This Filter Will Save you money and save oil, by enabling you to use the same oil over and over again.

It is simple, easily cleaned, its maintenance cost is practically nothing, and its work is endorsed by all dealers and garagemen using it.

"SIMS" Oil Filter

After using, the oil is poured into tank at top of filter, goes down central tube, and floats up through water, being widely distributed by cones. It then passes through filtering cloth and flows out faucets into "clean oil" chamber and is ready to use again.

Tell us the amount of second oil you throw away; we will tell you size filter you need. The low cost will surprise you.

30 days' free trial

THE SIMS CO.
ERIE, PA.

No Mechanical Faults

Three years of study and experiment were devoted to construction of the Keystone shock absorber before it was offered to the motor-riding public. It is scientifically correct. One outstanding feature of the



Keystone Shock Absorber

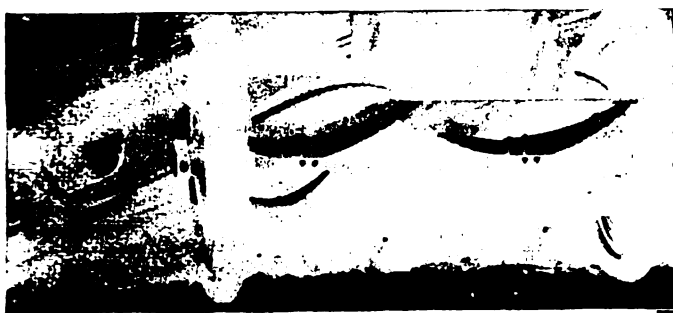
is the absolute and unvarying "central pull." No side pulls with the inevitable friction, binding and rapid wearing, so common among devices incorrectly designed.

Shock absorbers save the car, the tires and consequently reduce cost of owning an automobile. But it is important that you get the right kind of shock absorbers.

Some dealer territory open.

STEEL CITY ELECTRIC CO.

1207-19 Columbus Ave. Pittsburgh, Pa.



Springs That *Stand* the Strain

Bang! Right into that hole at forty miles an hour! Did he break a spring? No, his car was equipped with

Tuthill Titanic Lubricated Springs

Guaranteed forever against center breakage—guaranteed at all points and in every respect for one year.

No weakening center bolts—no center nibs. Instead they are strongest at the center—they are reinforced by a patented arch. Rigidly tested both for *elasticity* and *tensile strength*—easily adapted to any axle construction *without extra expense*.

Our Special Ford Tuthill Titanic Spring carries the same broad guarantee as other Tuthill Titans.

Write for 1917 Price-list—the most complete list ever published for spring replacements—also our proposition to dealers and name of nearest distributor.

Tuthill Spring Company
760 Polk Street Chicago, Illinois



FOR use on automobiles, commercial vehicles, tractors and for all around service.

Its utility is unlimited. Made in sizes from 6 to 18 inches. It can handle practically any nut or bolt proposition that comes up in the day's work.

The jaws of Model G are unusually thin, adapted for use in narrow spaces. They are made according to a special Billings & Spencer process and unlike other thickness with the jaws of wrenches they are **Drop-Forged**. Compare them in other wrenches and you will note the difference.

The jaws of Model G do not chip when wrench is dropped on hard surfaces, as so often occurs.

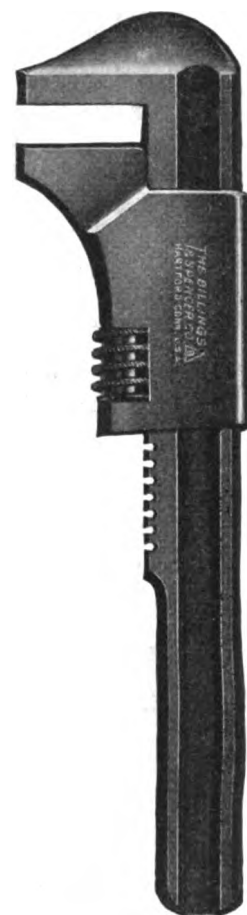
These features, together with its workmanship and material, place Model G in a class by itself and have caused it to be universally adopted.

It is unconditionally guaranteed.

Send for 34th Edition of Catalog Just Issued.

Billings & Spencer tools for sale by the Hardware and Automobile Accessory Trade.

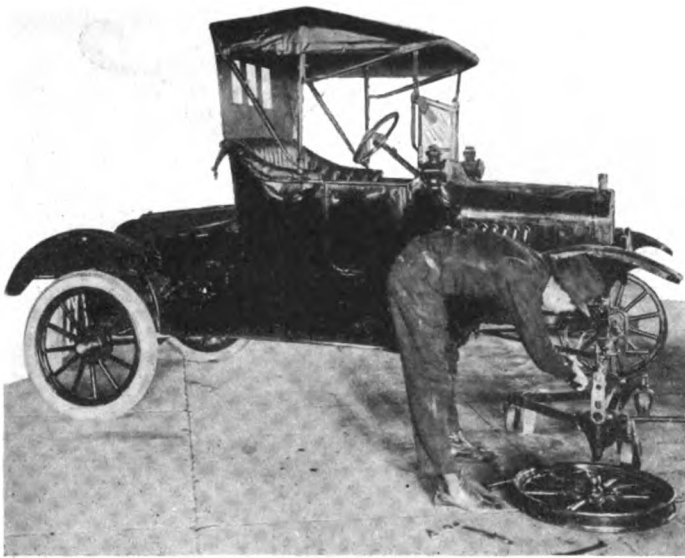
Orders promptly executed



MODEL G

THE BILLINGS & SPENCER CO.
HARTFORD, CONN. U.S.A.

When writing advertisers please mention Motor World—It identifies you



Eliminate Wasted Time In Repair Work

It is obvious that the quicker garages make repairs, the more money they will make.

Two things are essential for good, quick, repair work—good mechanics and proper equipment for quick service.

Berger Steel Bins and Shelving

will properly care for all the repair parts necessary to be carried in stock—keeping them not only in perfect condition but in a convenient place so that no time is lost in requisitioning the proper parts for any repair job.

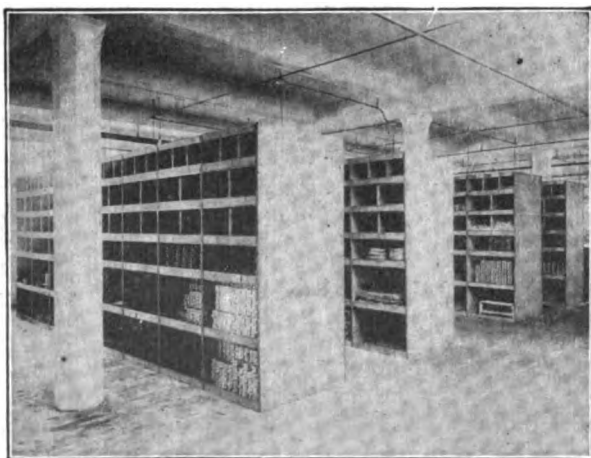
Berger Steel Bins and Shelving eliminate confusion, wasted time, costly delays and lost materials. They systematize the stockroom so that no shortage of parts occurs and no excess materials are carried in stock.

Berger standard equipment is fire resisting and indestructible—cannot warp, split nor rot. It requires small floor space, and is readily adjustable to care for any size or type of materials. Gives a lifetime of service at reasonable cost.

Write for full particulars and Catalog R.W.

The Berger Mfg. Co., Canton, O.

Branches: Boston New York Philadelphia Chicago
St. Louis Minneapolis San Francisco Los Angeles
Export Dept.: Berger Bldg., New York City, U. S. A.



Hercules Motor Co., Canton, Ohio

Letters On LAMINUM

NO.
9

Salineville, O., Jan. 27, 1917.

Laminated Shim Co.,
New York City.

Gentlemen:

The mechanic who wastes his time with old-fashioned shims will soon be a back number. Owners are becoming more critical every day, and the man who fits up a set of bearings for them must do it quickly, and good, too, or lose his prestige with them.

With Laminated Shims one can make a very exact job and do it in a short time, too. With the old style loose shims, one had to try various combinations until he got a good fit. Each time he tried out a combination he had to pull up his bearing, if too tight or too loose take it all down again and repeat.

About half the time, when putting on the lower half of bearing, he would lose part or all of shim assembly. Laminated Shims improve a mechanic's temper and also his language. It makes him a quick and accurate workman.

Yours,

C. R. Pierson.

LAMINATED SHIM CO.,
533-541 Canal St., New York
DETROIT, 2113 DIME BANK BLDG. — ST. LOUIS — WEIS-BOSLEY 1411 CHESTNUT ST.

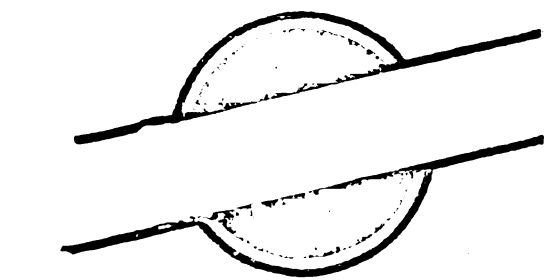


To Your Specifications

High quality materials and accurate workmanship are the two factors that make Lewis Valves stand ahead of the rest.

We make valves exclusively and can handle large or small orders. Lewis Valves will be made to your specifications if desired, but they will be heat treated by the Lewis method, which means long wear and more power.

Lewis Electric Welding & Mfg. Co.
TOLEDO, OHIO



A Policy of

giving the dealer his due—passing prosperity around—makes a dealer's contract with this concern a cherished acquisition—generally at a premium.

For advance information wire or write Motor Age, 95 West Fort St., Detroit *See announcement next week*

STEVENS & CO. NEW YORK

1,000 for \$5.00

Printed both sides on tough cardboard, with 12 inch strings and blank space ready for your imprint.

REPAIR TAGS

Save Expensive Errors

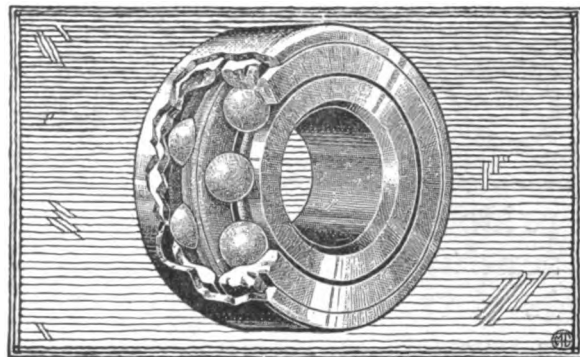
Gain Your Customers' Confidence

Numbered serially, with detachable check for car owner to retain. A genuine convenience for every repairman, and a record that proves to an owner that he's getting his money's worth. It stops kicking over repair bills. This tag is another evidence of the Stevens policy of keeping in touch with the trade's needs and satisfying them in a simple economical way.

Send for Samples

STEVENS & CO., 375 Broadway, New York City

MANUFACTURERS OF **Automobile Parts & Accessories**



For Big Loads Too

TO convince a prominent axle manufacturer of the ability of New Departure Ball Bearings to withstand ponderous loads at low speeds, a test was run in which all principal types and makes of bearings were represented.

Each bearing was run continuously with a 400 per cent overload at 200 R.P.M. When all but the New Departure Double Row had gone down, it was found that the New Departure Single Row was 96 per cent efficient, while the nearest competitor was only 23.8 per cent efficient.

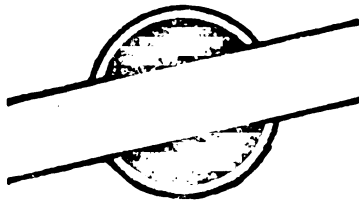
Why New Departure Ball Bearings are equally efficient for heavy loads at low speeds as for light loads at high speeds is convincingly told in Booklet A, gladly mailed upon request.

The New Departure Mfg. Co.
Bristol, Connecticut
Conrad Patent Licensee

**NEW DEPARTURE
BALL BEARINGS**

There is a
**considerable
 amount of**
 pride to be taken in representing a motor car which is internationally renowned—seen and respected in every civilized country on the globe.

See announcement next week



For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit, Michigan. Inquiries marked "Confidential" will be answered direct by MOTOR AGE and so treated.

AMAZON

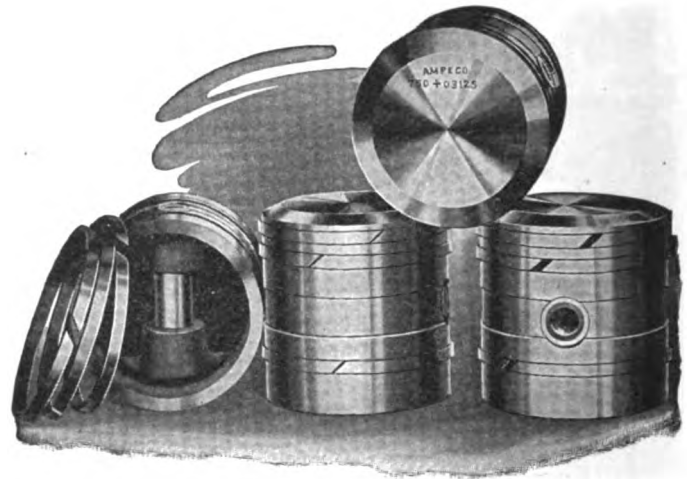
Handling a better tire means building a bigger business.

The Amazon Supertire is an improved standard product—and the scientific, reinforced construction with the resultant extra service, offers an inducement that the consumer is quick to appreciate.

Your territory may still be open—write us.

THE AMAZON RUBBER COMPANY
 AKRON, OHIO

"AMPECO" PRODUCTS



"AMPECO" Pistons Are LIGHT

—the average weight is 2 $\frac{7}{8}$ lbs.

—they will not vary one ounce in weight

"AMPECO" Pistons Are ROUND

—are mechanically perfect

—are true to measurements

A Ford motor with four pistons of the same weight, and of light weight, will make a much smoother running motor, overcome main bearing troubles, give increased power, and increased speed.

Buy "Ampeco" Pistons and Get the Best

American Machine Products Co.

Marshalltown, Ia.

Long Life Bushings In Spite of Neglect

Oil-less Bushings

"NIGRUM" (Impregnated Wood) "BOUND BROOK" (Graphite-and-Bronze)

Trade Mark Reg. U. S. Pat. Off.

All genuine Graphited Oil-less Bushings have always been made at Bound Brook, U. S. A.

BOUND BROOK OIL-LESS BEARING CO.

Bound Brook New Jersey

Specialists in the manufacture of Oil-less Bushings for more than a third of a Century

DELION
 Long Service
TIRES

Each Delion dealer gets *all* the Delion trade in a definitely-named territory. This holds good *permanently*. And he gets the profits he *should have* in tires. Investigate.

DELION TIRE & RUBBER CO., Inc.

Main Office: 1922 Broadway, New York
 Chicago Office: 3449 Michigan Ave., Chicago

When writing advertisers please mention Motor World—It identifies you



Increase the Efficiency of Your Garage

Handle more repair work with less labor expense, and eliminate the risk of damage claims, by installing

Richards-Wilcox Overhead Carriers

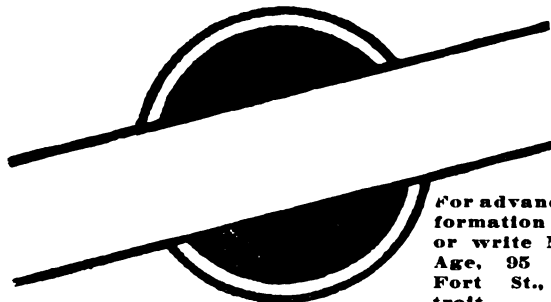
For lifting and carrying Engines, differentials and other heavy units. Save in labor their cost in six to twenty-four months on the average. Adapted to small or large loads.

Send us plan and description of your conditions, with measurements. We will solve your carrying problem.

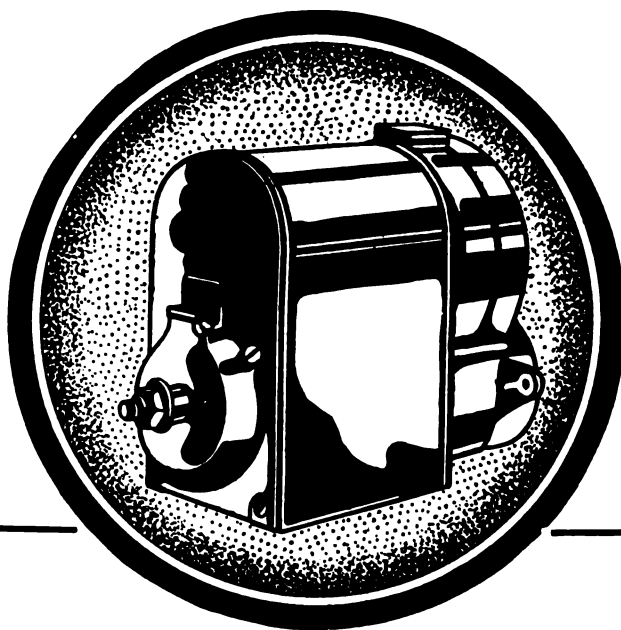
Richards-Wilcox
MANUFACTURING CO.
AURORA, ILL. U.S.A.
INCORPORATED - 1900-1909-1910

One of the
most efficient
and prosperous,
smoothest working and
best satisfied dealer
organizations in the
industry is the organi-
zation you may have the
privilege of represent-
ing.

See announcement next week



For advance in-
formation wire
or write Motor
Age, 95 West
Fort St., De-
troit



There's One Big Thought Behind the Eisemann

Through sixteen years of consistent progress and improvement—the longest time that has been spent in developing any High Tension Magneto—there has been no change in our original purpose.

To hold the cost of the Magneto within reasonable limits and to excel in compactness and appearance—these are important objects which have received their full share of attention from the Eisemann Engineering Staff.

But no one of these considerations has been allowed to interfere with the one dominating Eisemann purpose. Our fixed determination has been to make the most efficient Magneto.

And so we are making it. For proof, consult the long list of truck, car and tractor makers who use Eisemann as standard equipment.

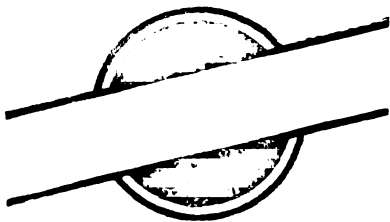
THE EISEMANN MAGNETO CO.

Sales and General Offices:
32-33rd St., Brooklyn, N. Y.
Chicago, Ill., 910 So. Michigan Avenue
Detroit, Mich., 802 Woodward Avenue

THE
EISEMANN
MAGNETO

Bigger Profits

for Automobile Dealers. See Announcement Next Week. For advance information wire or write MOTOR AGE, 95 West Fort St., Detroit.



Carry a Few in Stock this Season

Next season you will do it without being told.

The need for trailers is so general that they are easy to sell. They get easier to sell every month as people get used to the trailer

idea. The trailer has come to stay because it is the only logical way to solve carrying problems.

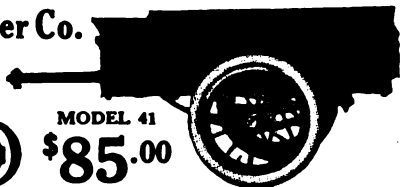
The illustration shows Model No. 41 (our smallest) one-half ton capacity. Price \$85.

The Ohio Trailer Co.

58 Doan Avenue
Cleveland, Ohio



MODEL 41
\$85.00



WOODWORTH SPRING COVER AND LUBRICATOR

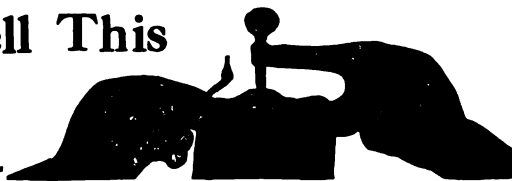
The simplest, most effective and inexpensive spring lubricator and protector on the market. Exactly what the motorist wants and can afford.



No trouble. Just lace it on over the spring. Leave it there a year and then renew felt wicking (oil soaked) with which it is lined and put it back on for another year. Dealers find it easy to sell and profitable. Write us today!

WOODWORTH MFG. CORP.
Niagara Falls N. Y.

Sell This



MENDS TUBES IN 5 MINUTES

The sensation of motordom. Over 100,000 sold in 60 days. No acid, gasoline or flame. A combustible disc furnishes the heat. A match is all that's needed.

SHALER

5 Minute
Vulcanizer



\$1.50

Clamp, 12 patches and heat units. Sells for \$1.00. Big advertising campaign now on. Write for our proposition.

C. A. SHALER CO.,
424 Fourth St., Waupun, Wis.

DEALERS! Sell Stanley Springs SELF-OILING

Made in sizes for over 600 models of various cars. Sell for but little more than old-fashioned spring. Always lubricated—no rust, no squeaks. Ask your jobber or write us today!

STANLEY SPRING CO.
1132 Karpen Building CHICAGO
Send for FREE Book.

Miles Cheaper

Users Report Records of

8,000
10,000
12,000
15,000
Miles

Settle the MILEAGE PROBLEM—Use

QUAKER RUBBER

Quaker City Rubber Co. Philadelphia

FOR LEAKY CYLINDERS



PISTON RINGS

EVER-TIGHT PISTON RING Co. ST. LOUIS MISSOURI

Eastern Sales Office, J. H. Wasserman, Mgr., 149 Church St., N. Y. City
Asbestos & Rubber Wks. of N. J., 1323 Michigan Ave., Chicago, Ill.
Automobile Necessities Co., 1027 Nicollet Ave., Minneapolis, Minn.
General Tire & Rubber Co., 1513 Grand Ave., Kansas City, Mo.

MARION-HANDLEY
THE SIX PRE-EMINENT

Away from the rank and file and emphatically in the class of cars of dominant character and personality stands the **MARION-HANDLEY**. Send for Catalog.

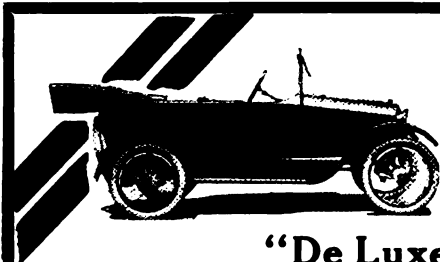
Model A-6-40, \$1350; Model B-6-60, \$1650; f.o.b. Jackson.

THE MUTUAL MOTORS COMPANY Jackson, Michigan
J. I. Handley President

When writing advertisers please mention Motor World—It identifies you

Cored Bars HIGH SPEED **NON-GRAN** BEARING BRONZE For Bushings

AMERICAN BRONZE COMPANY
BERWYN, PENNSYLVANIA
SOLE MANUFACTURERS OF NON-GRAN AND LARGEST EX-
CLUSIVE MANUFACTURERS OF BEARING BRONZE IN THE WORLD



"De Luxe" Bodies (for all Ford Cars)

Adds the desired comfort and beauty—finishes up the car. Makes the Ford as satisfactory as any medium priced car. The cost is small. Write for catalog and dealer proposition.

Detroit Auto Products Company
1007 E. Palmer Avenue, Detroit, Mich.

Ready
To
Use



The New
Way
To Solder

KESTER CRYSTAL-CORE SOLDER

A Seamless Tube of Wire Solder

The core is a soldering flux that flows as the solder is used. CRYSTAL-CORE is especially adapted for AUTOMOBILE work. Tube is a series of cells. Each cell is filled with the proper amount of flux. Kester Crystal-Core Wire Solder is cheaper to use than solid wire or bar solder. No time is lost in preparing or applying the flux or acid.

No
Leakage



No
Waste

Cleaner, Neater, Quicker Results

Use it for battery terminals, gasoline pipe and tank joints, electric light connections, radiator leaks, cracked fenders, speedometer flexible shaft, spark plug terminals and general garage use. Sold in coils of 1 pound, and on spools of 1, 5 or 10 pounds.

Order Today From Your Jobber

CHICAGO SOLDER CO.
CHICAGO ILLINOIS

Price
Only
\$1.50

The UTILITY Universal Rim Wrench Fits Every Demountable Rim Nut

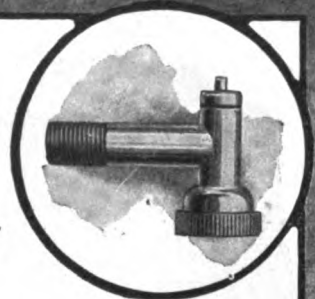
A complete socket wrench set in itself. Adjusts automatically. Can be used with both hands, like a bit and brace. Holds like a vise. Cannot slip off. Carries in the tool box when not in use.

Price, complete, only
\$1.50

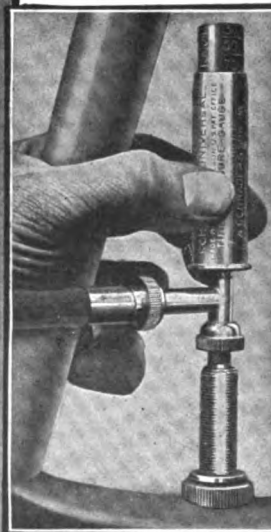
Write for free illustrated literature. Liberal dealers' offer

HILL PUMP VALVE COMPANY
Archer Avenue and Canal Street, Chicago, Ill.
Mfrs. of famous UTILITY protected Heaters for all motor cars

Tire Pumping And Air Testing Made Easy



Attach Pump Connection to pump hose and apply Gauge as shown.



MOST of your customers know that it is death to tires to run them insufficiently inflated. A great many of them, however, neglect to test their air pressure because this operation until now has been tedious and time consuming.

You will be doing them a favor if you will bring to their attention the fact that with a SCHRADER UNIVERSAL PUMP CONNECTION this hitherto complicated operation has become both easy and agreeable.

The SCHRADER UNIVERSAL PUMP CONNECTION retails in the U. S. A. for thirty-five cents, and you should have no difficulty whatever in selling as many of them as you have customers. It will also help you to sell gauges to those of your customers who until now have been deterred from testing their air pressure by thought of the labor and loss of time involved.

A. Schrader's Son, Inc.
783-803 Atlantic Ave.
Brooklyn, N. Y.



DEALERS!

New territory being opened. 100% greater output for 1917. Big increase in advertising campaign. Write—or wire!

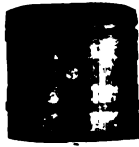
**THE HAYNES
AUTOMOBILE CO.**
70 So. Main St., Kokomo, Ind.

When writing advertisers please mention Motor World—It identifies you

THE BEST RACING CARS

use the same aluminum alloy pistons as you can get for your Ford for \$18 complete with rings and pins.

FEATHERWEIGHT PISTONS



for Ford, Reo, Dodge, Overland, White and other motors. Oversizes for Fords in stock.
You will get more power and Speed with less fuel consumption and cut down noise and vibration.
Dealers write for discounts at once.

FEATHERWEIGHT PISTON CO.

11 Guyman Way

Pittsburg, Pa.

IMP CARBON CHASER

Gives More Power Greater Speed

The New Fuel Element

Better Ignition and Uniform Combustion

SAVES 25% GASOLINE ELIMINATES CARBON

One IMP Tablet in every FIVE Gallon of Gasoline will do the work. Retail price 50c. can of 20 tablets. Exceptional discount to Jobbers and Dealers. Convince yourself Mr. Dealer—send for FREE TRIAL

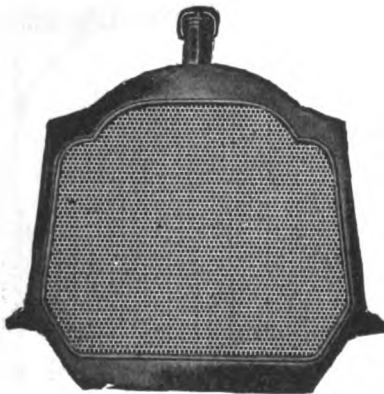
And Attractive Proposition

IMP CARBON CHASER CORP.

1465 BROADWAY

Dept. 129

NEW YORK



Fedders Radiators

Fedders quality is largely the result of 18 years' specializing in radiator production.

Fedders Manufacturing Co.
Buffalo New York

TRADE MARK

SEXTONS

CASTOR MOTOR OIL

"Your Motor's Best Friend"

Send for Catalog. Dealers—Distributors, Write
SEXTON OIL CO., 1171 Peoples Gas Bldg., Chicago, U.S.A.

"Eklips" The Spark Plug of Many Merits

A MULTI-POINT plug of specially heavy construction. Soot-proof, leak-proof and oil-proof features. Gives a sure, hot spark. Finished carefully in all details which effect its appearance or service.

Made in different styles, sizes and threads to fit all cars.

The Fulton Company
721-723 National Ave.
MILWAUKEE, WIS.

Hartford AUTO JACK

Serves you best when you need it most. Try it and you'll buy it.

THE EASY LIFTER

Edward V. Hartford, Inc.
142 Morgan St., Jersey City, N. J.

THE BEST JACK MONEY CAN BUY

\$8.00



JUMBO SPARK PLUGS

are built to stay on the job under the hardest conditions. We show here our big leader

JUMBO "MOLITE"
Price, 50 cents

Guaranteed for the Life of the Car. Other types for Fords and other cars, 45 cents. Ask your dealer.

Gibson-Hollister Mfg. Co.
3380 Washington Street,
Jamaica Plain, Mass. 69-36

CURE LEAKY REAR AXLES

Avoid grease and dirt on hubs and wheels, oil-rotted tires, oil-soaked brake linings and dry bearings on your FORD.

KAN-LEEK WASHERS

For Fords

are the positive and inexpensive remedy. A set of four makes grease "stay-put." Simple, nothing to adjust, easily applied. They'll end rear axle bearing troubles and keep repair bills down.

Special Discount for Dealers and Jobbers Per Set, 75c.

APEX MFG. CO., St. Louis, Missouri
Exclusive Selling Agent, HARRY BECKER
104 S. Michigan Ave., CHICAGO

When writing advertisers please mention Motor World—It identifies you



The New Hose

Built for Permanent Service

TRIPLEXD

TRIPLE
CONSTRUCTION
TRIPLE
STRENGTH
TRIPLE
LIFE

METAL HOSE & TUBING CO.
INCORPORATED
RAYMOND & TILLARY STS.
BROOKLYN, N.Y.

Quality in Motor Trucks

It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

Our reputation for producing the most lasting truck is recognized by our many users.

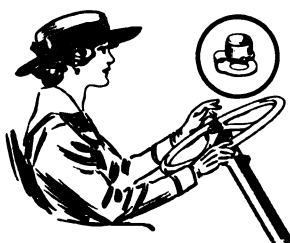
We offer for your convenience the following sizes:

1½-ton 3½-ton
2-ton 5-ton
7-ton

Hurlburt Motor Truck Company
133rd St. and Harlem River New York, N. Y.

The HANDY Horn Push Button & Holder FOR FORD CARS

Price
50c



A Necessity
Not a Luxury

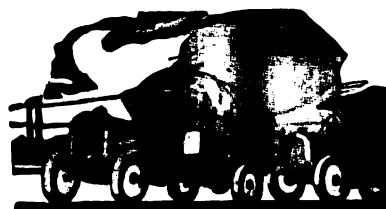
A Safety
Device

that eliminates
reaching thru or
around the wheel

to blow the horn. You cannot afford to be without it. You can attach in 5 minutes. *Manufactured by*

THE FRANCIS-RAND CO.

Cleveland, Ohio



MANLY TRUCKS—The Biggest Advance in Truck Construction of the Decade, 1½ and 2½-ton Models

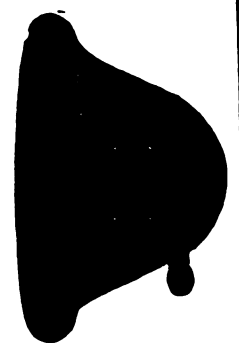
DEALERS WRITE

MANLY MOTOR CORPORATION
FACTORY, WAUKEGAN, ILL.

Use Headlights That Identify Your Car

Distinctive types of electric headlights for all cars. Lights that identify your car. Built by the largest manufacturer of automobile lamps.

The John W. Brown Mfg. Co.
Columbus, Ohio
Detroit Office: Suite 411, Union Trust Building.



Watch for epoch-making announcement next week to automobile dealers and distributors.



For advance information wire or write Motor Age, 95 West Fort St., Detroit



For Garages and Independent Plants

Our steam vulcanizer takes care of sectional repairs on all tires ranging in size from 1½" bicycle tires to 37" x 5" Automobile Tires. Capacity 3 casings and four tubes. Complete, with set of tools

**ANDERSON
STEAM VULCANIZER**

and ready to operate. Send for prices and full particulars.

Get our proposition on new model.

Anderson Steam Vulcanizer Co.
Worthington, Indiana

STATE
AGENTS
WANTED

BURD
High Compression
PISTON RINGS
"The Accepted Standard"

BURD HIGH COMPRESSION RING CO.
ROCKFORD, ILLINOIS
Sales Offices in All Principal Cities

When writing advertisers please mention Motor World—It identifies you



For advance information
wire or write Motor Age,
95 West Fort St., Detroit

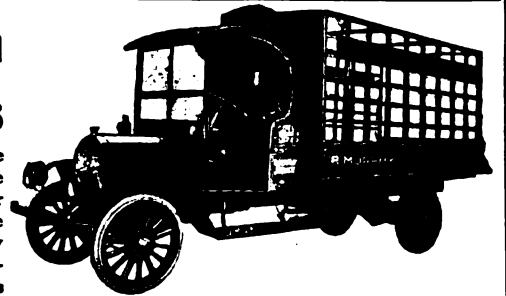
Lamson Trucks

—worm drive
—built large
and sturdy for
severe service
—always ready
—always will-
ing — always

able to deliver the load wherever a motor truck can go.
Made in 5 sizes—1 to 5 tons—all oversize jobs. Write for
catalog, prices, etc.

LAMSON TRUCK & TRACTOR CO.

General Offices and Service Station
4640 West Madison Street, Chicago, Ill.

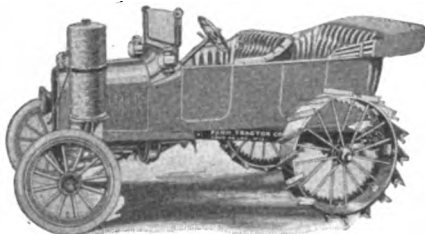


20th Century Farm Horse

\$150⁰⁰

Furnished with
Special Auxiliary
Cooling System
Fits Any Ford

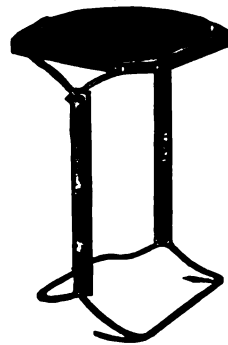
Write for Literature



LIBERAL DEALER'S PROPOSITION

FARM TRACTOR CO. 126-200 DOTY STREET
FOND-DU-LAC, WIS.

BUFFINGTON Special Upholstered Stools



Made with a little larger top than our regular stools. Seat is 11 inches square with corners cut. It is upholstered in imitation leather, black or maroon, tufted with hair. Seat is made of three-ply 1/2-inch veneer and will not warp or break. Folds very compact. A very handy, comfortable stool much in demand by automobile and camping parties.

Sizes: 11, 15 and 17 in.
high; seat 11x11 in.

Finished regularly in Japan

Manufactured by

C. A. BUFFINGTON & CO., BERKSHIRE, N. Y.

"Defies Time and the Elements"



**CHASE
DREDNAUT
Motor
Topping**

More "Chase" material
is used on vehicles today
than any other brand.

L. C. CHASE & CO., BOSTON
NEW YORK DETROIT CHICAGO
Seventy Years' Leadership in Manufacturing

Summer or Winter

Windshield
Cleaner Device
Co.

641 East 39th St.
CHICAGO, ILL.

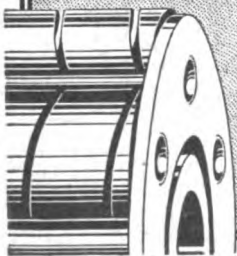
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Los Angeles, Cal.



Trade

Mark

HYATT QUIET —the logical bearing



for Motor Cars
Motor Trucks and
all Motor Vehicles

UNITED

DOES MORE THAN ANY 6-TON TRUCK CAN DO

Get the facts about United Trailer Tractor. Does everything a truck can do and many things a truck can not do. If you need a one-truck service, the United is most economical. If you need a fleet use the United and as many trailers as you require. We supply any type of trailer body equipment. Write for catalog.

Dealers: There is an enormous market on the United. Get our liberal proposition.

**UNITED MOTORS
COMPANY**

Mfrs. United Tractors and Trucks
GRAND RAPIDS, MICH.



A Tractor—not merely
a short wheelbase truck

6-ton Trailer Tractor

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BETHLEHEM MOTOR TRUCKS "Dependable Delivery"

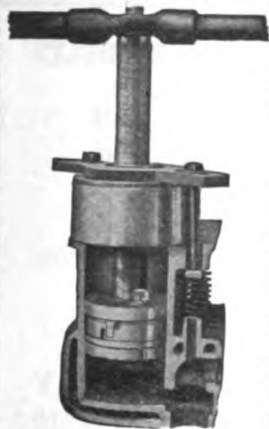
\$1125
1 1/4 ton Chassis

\$1665
2 1/4 ton Chassis

\$1165
1 1/4 ton Complete
with body and top over driver's seat
All F.O.B. Allentown

Built to dominate the truck business in your territory—backed by the Bethlehem guarantee and a strong national advertising campaign. Is your territory covered?

BETHLEHEM MOTORS CORP'N
ALLENTOWN, PA.



THE STORM & O'HAIR Cylinder Reboring Machine

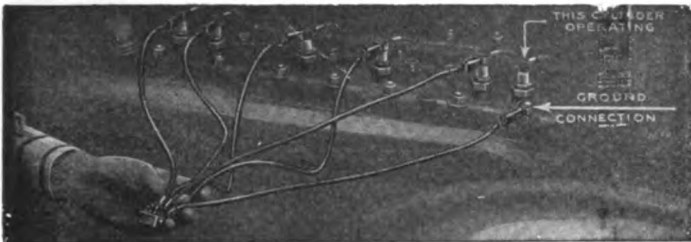
is adjustable and will rebore practically all makes of

Automobile, Aeroplane, Motor Cycle, Light Marine, Tractor and Stationary Motors

It is simple, speedy and accurate and can be used by anyone familiar with tools.

Indispensable in any repair shop. Not an experiment but a thoroughly tested and reliable tool.

FOR SALE BY LEADING JOBBERS
For further information address
Storm & O'Hair Company
426-27 W St. Thompson, Iowa



THE EDGERTON MOTOR TESTER

First Aid for All Motor Troubles

Such as faulty ignition, missing explosions from any cause, weak cylinders, leaking valves or pistons, faulty valve or ignition timing, bad carburetor adjustments, knocking in cylinders or bearings, carbon troubles, etc. Made in two models for any number of cylinders.

Write for literature or order today Prices \$2.00 to \$9.50

R. G. EDGERTON & CO., Suffolk, Va.



"Look for the Dutch Girl on the Label"

DUTCH BRAND

To accept a substitute after once having used a DUTCH BRAND Product is to invite disappointment. DUTCH BRAND Products are guaranteed satisfactory. You run no chances.

Ask your dealer

VAN CLEEF BROS.

Manufacturers Dutch Brand Rubber Cements and Auto Chemical Specialties

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Chicago

Rubber Cements
Tread Filler
Vulcanizing Cements
24 other Auto Specialties

ISCO

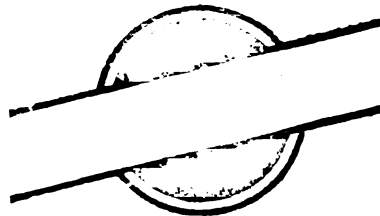
NEW TWO-UNIT STARTING and LIGHTING SYSTEM for Ford Cars

Best for the Ford owner because it is the most powerful, reliable, and long-lived Ford system ever produced.

Best for the dealer because it satisfies and keeps customers and because of its wonderful simplicity. Installing time less than three hours. Removing four through bolts permits inspection and adjustments. Price \$85.00 installed.

Disco Electric Lighting & Starting Corp.
Detroit

Eastern Branch: 68th St. and Broadway, New York City



For advance information wire or write Motor Age, 95 West Fort St., Detroit

A splendid opportunity for big distributors in the East. See announcement next week.

Inter-State

SIX BODY STYLES

\$850 to \$1325

Write to-day for illustrated catalogue and territory information.

Complete line of export models for foreign markets. Prices on application.

Inter-State Motor Co. Muncie, Ind.



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DETROITER SIX-45

The Six of Advanced Construction

UNIQUE **\$1250** RAPID
VALUE SELLER

Detroit Motor Car Co., Detroit, Mich.

PLAY SAFE!

Save Money, Pain, and Perhaps Disaster!

Carry a Martinkit in your car and be prepared to treat cuts, bruises, burns and even bad wounds accidentally received.

It costs but \$2.00.

Jobbers and Dealers, Write Us for Our Proposition.

MARTINKIT
TRADE MARK

Martin Auto
Accessories Corporation
Rochester, N. Y.



UNIVERSAL SPRING OILER

Stops Squeaks—Works out Rust—Makes Car Run Better

3,500,000

cars in the U. S. require spring oilers.

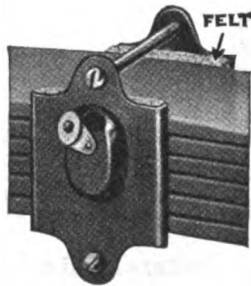
JOBBERS & DEALERS

Write for our proposition.

We are turning over all orders to Jobbers and Dealers selling our goods.

Price—25c. each.
1½" and 2" sizes.

Improved Gauge Mfg. Co.,
302 West Water St.,
Syracuse New York



OWEN MAGNETIC

WHAT IS YOUR UNDERSTANDING OF FLEXIBILITY?

Flexibility means (according to the advertisements) the ability of a car to slip from low speed into high, or from high into low, with extreme smoothness and celerity.

Flexibility—approached in other cars—is actually attained in the Owen-Magnetic.

BAKER R & L COMPANY

Cleveland, Ohio

Manufacturers of
OWEN MAGNETIC
MOTOR CARS

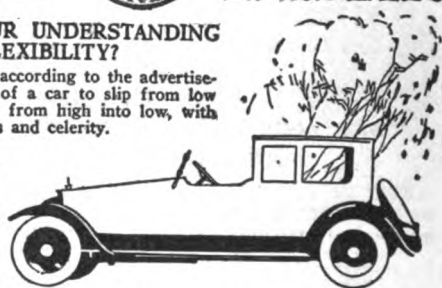
Salesrooms—

New York

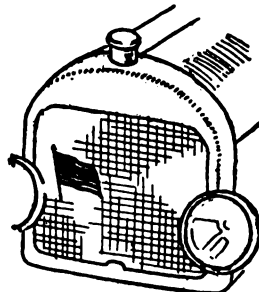
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Philadelphia

Chicago



"Put the Colors at the Front"



**Metal Flag
or Shield**

5½ x 3½

Highly Enameled

Supplied with Studs or Wire Attachment

Price \$2.00 each

Discount to Dealers

ALLEN PIN COMPANY

101 SABIN STREET

PROVIDENCE, R. I.

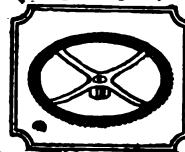
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Indestructibility, Beauty, Tilting and Hand Warming are the Povasco features that place it beyond any other Steering Wheel. Our proposition on wheels and radiator caps is interesting to distributors and manufacturers.

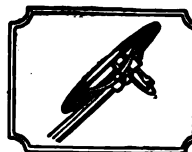
POUVAISMITH CORPORATION

Poughkeepsie,

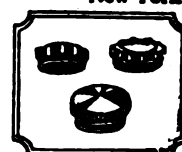
New York



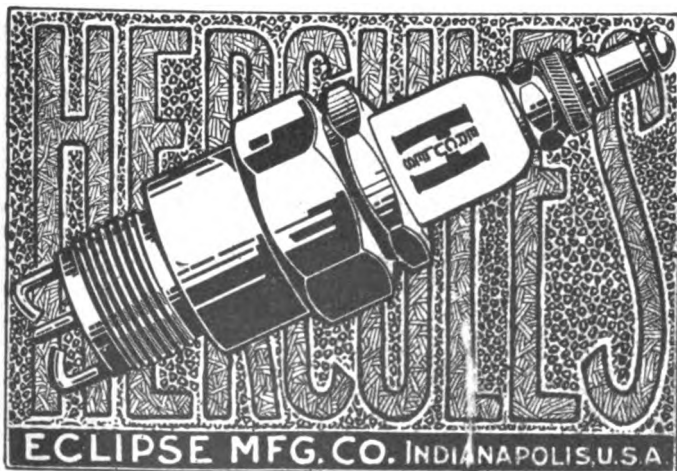
Plain Povasco



Tilting & Warm Hands



Radiator Caps



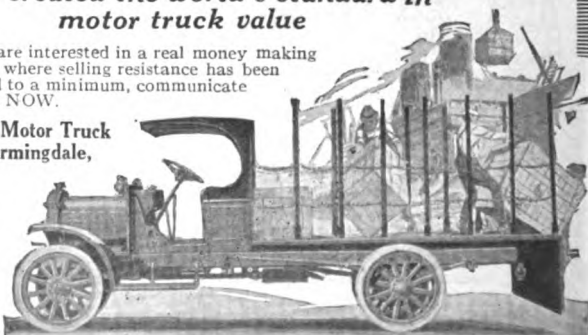
THE FULTON TRUCK

1½ Ton Capacity

Has created the world's standard in motor truck value

If you are interested in a real money making agency where selling resistance has been reduced to a minimum, communicate with us NOW.

Fulton Motor Truck Co., Farmingdale, L. I., N. Y.



When writing advertisers please mention Motor World—It identifies you

The Foot Air Accelerator



Made Especially for
Fords—Regulates
Combustion

A new, big seller
that by injecting
hot air into the
Intake Manifold
guarantees more
speed, more power,
less carbon, a
cooler motor, flexibility
and ease in driving
an air brake, and an
increase of 75 to 100% in mileage from fuel.

Price
only
\$6

Dealers wanted Exclusive territory for distributors Write
FOOT AIR ACCELERATOR CO.
Union Central Bldg. Cincinnati, Ohio



For advance information
wire or write
Motor Age, 95 West
Fort St., Detroit

On the *price*
of the cars you
handle depends
the *amount* of
business you do.
See announcement
next week.

CONAPHORE

LONG HORN

KIMBALL AUTO JACK

G-P MUFFLER CUT-OUT

CASSCO ENGINE-DRIVEN

TIRE PUMP

Edward A. Cassidy Co.

A Selling Corporation

Madison Ave. and 40th St., New York City

NEW PROCESS

ACCURATELY CUT
METAL GEARS

and Bailey Non Skid
Non Stall Differential



**NEW PROCESS
GEAR CORPORATION**

SYRACUSE, N. Y.



Model A
3 to 18 Cells

A Simple, Efficient
Rectifier for Automobile
Battery Charging
**LITTLE GIANT
CONVERTERS**

are shipped ready for service. No
special installation is necessary.
They are automatic, light and
small. They require little or no
attention.

Write for Bulletin No. 10.

The Little Giant Converter Company

983 The Arcade

Cleveland

THE LAIDLAW CO., Inc.
16 W. 60th St. New York City

**AUTOMOBILE
FABRICS**

A Fabric for Every Purpose for
Open, Closed, and Convertible
Bodies

GEARLESS
DETROIT
CRANK-SHAFT
Tire Pump
Pat. Aug. 25, 1915

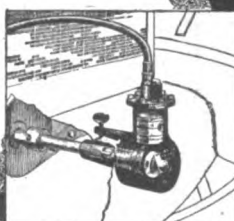
960,000
PROSPECTS

With Cars Between \$800 and \$1300

Now ready for Briscoe, Dodge,
Chandler, Hudson, Overland, Reo,
Stearns, Saxon 1916, and Studebaker
cars. On and off in a jiffy without
tools. Not a rubber diaphragm
device. Write for details. Dealers,
ask for discounts.

Price \$10

DETROIT ACCESSORIES CORPORATION
559 Hillger Avenue, Detroit, Mich.





Ever Good
RUST PROOF
MIRRORS

Numerous Models
to fit Windshields, Bodies, Fenders,
Limousines, Motor Trucks

One Quality—The Highest, both in Work-
manship and Finish.

EMIL GROSSMAN MFG CORP'N
Bush Terminal Bldg. 20 Brooklyn, N. Y.



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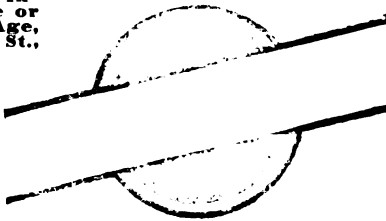
DETROIT BATTERIES

last approximately six months longer than the average battery. They are about 15 per cent more powerful in proportion to size and cost.

This is why their sale is now increasing on an average of over 60% every four weeks—a record no other battery has ever approached.

DETROIT BATTERY CO., Detroit, Mich.
Eastern Branch, 68th and Broadway, New York City

For advance information wire or write Motor Age, 95 West Fort St., Detroit



If you believe all you need is the *chance* to become a big-caliber dealer or distributor, see announcement next week

The Hal Twelve

S M O O T H P O W E R

Seven-Passenger Touring Car or Roadster, \$2600. Limousine or Town Car, (Leon Rubay bodies), \$4500. Cleveland prices.

Hal Motor Car Company, Cleveland, Ohio

STANDARD ELECTRIC TOOLS

You cannot afford to use any but the best electrical tools. Only first class tools give you the service you require.

THE "STANDARD" ELECTRIC TOOLS ARE THE BEST ON THE MARKET

We can submit a list of users and data to prove this statement.

Both Drills and Grinders are fitted with Universal Motors for use with alternating or direct current. Can be operated from either lamp socket or power circuit. Equipped with Ball Bearings.

We offer Special Proposition to Dealers. Write us today.

The "Standard" Electric Tool Co.
CINCINNATI, OHIO, U. S. A.

New York Office

1226 Broadway

In Stock—for Every Car



Write FOR CATALOG AND DISCOUNTS
DISPLAY RACK FREE WITH ORDER FOR 12 ASSORTED

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Minneapolis, Minn. 1024 Hennepin Ave.
Reading, Pa. 538 Franklin St.
Fort Worth, Tex. 708 Commerce St.
San Antonio, S. C. 29 Caldwell St.



BOSCH

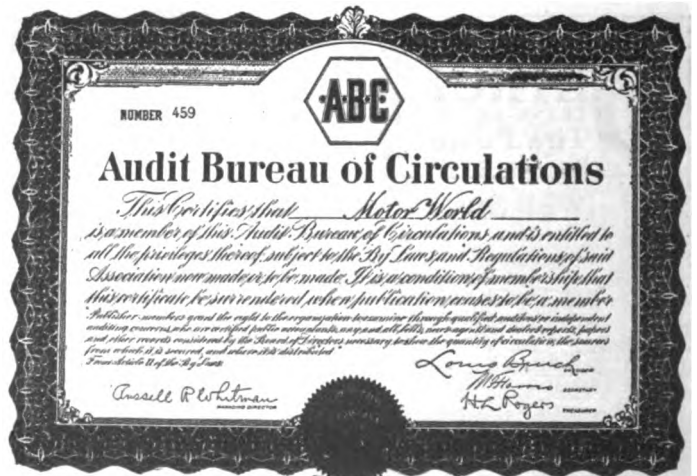
The ignition that is used by the world's fastest cars because it is the most reliable and efficient.

Be Satisfied Specify Bosch
Bosch Magneto Co.
224 West 46th St., New York

National Speedway Tires

For quality, stamina, strength and general dependability, just test a NATIONAL "Speedway" against the tires you are now using.

National Rubber Co., Pottstown, Pa.



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For OVERLANDS
For MAXWELLS

SPEED BODIES

LAMCO
ESTABLISHED 1896
CANNELTON, INDIANA

For FORDS

From start to finish LAMCO is a body for SPEED. To dealers it comes fast, it sells fast—and it goes fast.
Dealers and owners write for big free illustrated catalog
LEHMAN MANUFACTURING COMPANY
Cannelton Indiana

Add to Garage Profits by Oxy-Acetylene Welding
savings made, please your patrons and pay good substantial profits.

PREST-O-LITE
Dissolved Acetylene
(Ready-made carbide gas)

adds to the efficiency and usefulness of any good welding equipment. We furnish thoroughly high-grade welding apparatus for \$75.00 (Canada, \$100.00). The average user will also need gas cylinders at an additional cost, and about \$10.00 worth of welding supplies. Truck and special equipment for cutting operations at extra cost.

Send for details of Prest-O-Lite Service for Oxy-Acetylene Welding.

THE PREST-O-LITE CO., Inc.
The World's Largest Makers of Dissolved Acetylene
U. S., Main Office & Factory Canadian Office and Factory
287 Speedway, Indianapolis, Ind. Merriton, Ontario

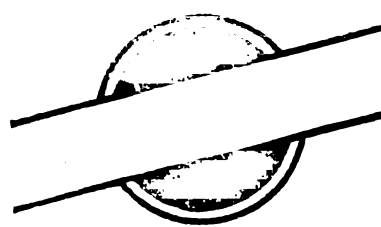


Make More Profits
with a
Universal Cylinder Reboring Tool



The extra profits from cylinder reboring, on overhauling work alone, make a UNIVERSAL Cylinder Reboring Tool a paying investment from the start.
Adjustable for any cylinder.
Write for catalog B.


THE UNIVERSAL TOOL CO.
DETROIT MICHIGAN



For advance information wire or write
MOTOR AGE,
95 West Fort St., Detroit, Mich. Inquiries marked

"Confidential" will be answered direct by
MOTOR AGE and so treated.


EUREKA RIM COMPRESSOR
The Most Efficient as well as the Most Popular Rim Compressor on the Market



The Eureka Rim Compressor will remove or replace tires in less than half a minute. Can be used for any detachable rim of the transverse split type. It is attached to the rim without the use of clamps or screws. It is quickly applied and operated. It is impossible for it to injure the rims, casings, or tubes, in any way.
The Eureka is strongly made. Guaranteed free from imperfections in material and workmanship. Price, \$3.00.

EUREKA RIM COMPRESSOR, Inc., Addison, N. Y.

Backus Utility Auto Lock
Protects Car and Contents



The Backus Lock with its mechanical fingers prevents the theft of robes, garments, suitcases and articles left in the car.
Locks in any position—indestructible. Every lock has different key combinations. Our liberal trade discount yields a good profit. Send for literature.

Backus Novelty Company
Dept. M.
Smethport, Pa.



ZENITH CARBURETOR

KNOWN the world over as the zenith of carburetor efficiency. A long list of American builders of cars, trucks and aeroplanes believe this simple, plain tube device to be the best insurance for permanent carburetor satisfaction.

Zenith Carburetor Co.
New York Detroit, U.S.A. Chicago

OLD SOL
NITROJECTOR NO 100
THE 100% PERFECT SPOTLIGHT



\$10

Complies with all laws for no-glare devices. Other dependable Old Sol Spotlights are No. 70—\$7.00, No. 77—\$5.00
Ask for Old Sol for Safety

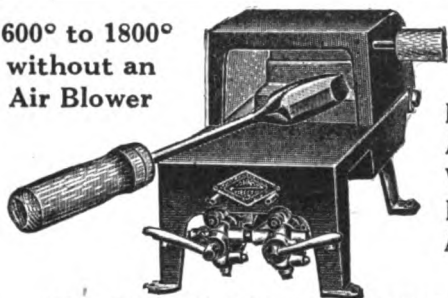
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The Pullmore Front Drive TRUCK is here

Union Arcade, Pittsburg, Penna.

1600° to 1800°
without an
Air Blower



Immediate
Action
Without
Intricate
Adjustments

The JOHNSON GAS FURNACE

—Is unsurpassed for heating soldering coppers, hatchet irons, capping steels, branding stencils, case hardening, heating for tempering, annealing, etc.

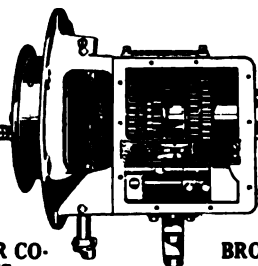
Write for free illustrated literature and profit-getting details.

THE JOHNSON GAS APPLIANCE CO., - Cedar Rapids, Ia.

Names Synonymous with the Beginning
of the Automobile Industry

BROWN-LIPE
TRANSMISSIONS

BROWN-LIPE-CHAPIN
DIFFERENTIALS



BROWN-LIPE-GEAR CO.
TRANSMISSIONS

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DIFFERENTIALS

Factories and General Offices
SYRACUSE, N. Y.

AJAX TIRES

Branches in
Leading Cities

Factories:
Trenton, N. J.

Guaranteed in Writing 5000 Miles

AJAX RUBBER CO., Inc., 1796-98 Broadway, New York

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"The Paper That Is Read, Not Merely Looked At"

It ought to be a regular weekly visitor in your office, Mr. Dealer. \$2.00 per year—a small price for a big value. Subscribe today.

Motor World Publishing Co., 231-241 W. 39th St., N. Y.



GUARANTEE VISIBLE PUMP

Automobile Associations are actively identified with the movement to obtain accurate and honest measure at gasoline selling stations.

The United States Government, too, is condemning pumps that make possible slow-pumping, short-stroking and other petty frauds.

Protect your business and insure your own success.

The Guarantee Visible Pump cannot be manipulated.

Officially endorsed wherever used

Don't hesitate. Write us today.

GUARANTEE LIQUID MEASURE CO.

Farmers Bank Bldg.

Pittsburgh, Pa.

Visible gasoline and oil pumps.

The Only Truck Attachment that Includes Unit, Cab and Body in one Job at one Price

Graham
Brothers

All-3
UNIT-CAB-BODY
Truck
Attachment



\$385

Saves you \$75 to \$125 on body equipment. Write for booklet. Get our dealers' proposition.

GRAHAM BROTHERS, Dept. B, Evansville, Ind.

MOTOR AGE

Only weekly devoted to the interests of car owners and dealers.

The recognized "Motoring Authority of America."

One subscription price of \$3.00 per year.

Real service department for the benefit of its readers.

Articles by expert and recognized authorities

Guarantees to increase your motoring pleasures and reduce your upkeep expense

Established in 1899.

MALLERS BLDG.
CHICAGO ILLINOIS

WORLD'S FASTEST SELLING AUTO ACCESSORY

1,409,000 SOLD FIRST TWELVE MONTHS

The G. L. W. Spring Oiler

THE HUDSON SALES COMPANIES
G.L.W. SPRING OILER ATTACHED

BASIC U.S. PATENTS
APRIL 11, 1916 MAY 16, 1916



Price
25c each

Here is the biggest profit winner you ever stocked. Order from your jobber or write direct. Requires 2 oilers for each spring—last forever.

THE HUDSON
SALES CO.

7 East Jackson Blvd.
Chicago, Ill.

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Genemotor

Trade Mark

"It Starts Your Ford and Lights It Too"

**Weights forty pounds, powerful, compact, sure.
Can be installed in five hours or less.
Each one warranted.**

Built by the General Electric Company

Price \$85 f. o. b. Lynn, Mass.

Sold Everywhere

A. J. PICARD & COMPANY

General Distributors

Broadway at 61st St., New York City



Fills a
Want in
Every
Car

Price
\$1.50



SAFETY 5-Minute Vulcanizer

—leads in patents, service, distribution and profits.
400,000 now in use. Write for complete
details and liberal dealer offer.



Safety Vulcanizer Mfg. Company
213-215 Federal Ave. S., Mason City, Iowa



PHILADELPHIA DIAMOND GRID BATTERY

The Best of Batteries

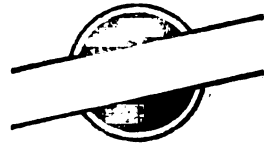
There may still be an opportunity to
obtain selling rights in your territory
if you act quickly.

Philadelphia Storage Battery Co.

Dept. A., Ontario & C Streets.
Philadelphia, Pa.



For advance information
wire or write Motor Age,
95 West Fort St., Detroit

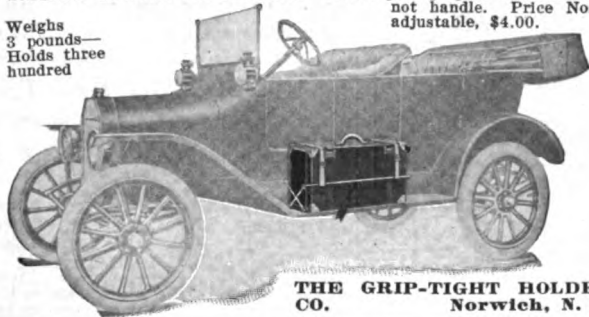


Dealers in the
South and South-
East see announce-
ment next week.

THE GRIP-TIGHT

BIG PROFITS. QUICK SALES. SMALL OUTLAY. Every motorist is a prospect. The Grip-Tight Luggage Holder is well made, good looking, and sells itself. Small, simple, quickly attached, it holds tightly suitcases, etc., without slip or rattle. Write at once for very attractive discounts and literature. Parcel post prepaid if dealer does not handle. Price No. 2 adjustable, \$4.00.

Weights
3 pounds—
Holds three
hundred



THE GRIP-TIGHT HOLDER
CO.
Norwich, N. Y.

The BEST wrench in the WORLD



"WESTCOTT"

"Westcott" is the original, adjustable "S" wrench—more convenient for motor work than any other wrench.

"Westcott" superiority is shown by its popularity with the best mechanics. It is used in the Ford factories and by many other automobile concerns.

Malleable Iron Handle—Forged Steel Jaw.

Sizes 6 to 14 in. (open from 3/4 to 2 in.) Price per doz., \$8.00 to \$21.

Get them in your catalog

THE KEYSTONE MANUFACTURING CO.
Buffalo N. Y.



ALL wise motorists demand Firestone Accessories because they are big helps in any tire troubles. Be a wise dealer and handle the Firestone line. Write today for selling plans we have in store for you.

FIRESTONE TIRE & RUBBER CO.
Akron, O., Branches and Dealers Everywhere

Firestone Accessories

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NON-BURN ASBESTOS BRAKE LINING



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30x3 1/2	9.30	9.75	2.16
32x3 1/2	10.70	11.20	2.27
34x3 1/2	11.95	12.55	2.42
31x4	14.35	15.10	2.97
32x4	14.60	15.35	3.07
33x4	15.25	16.00	3.14
34x4	15.55	16.25	3.23
35x4	16.35	16.95	3.33
36x4	16.35	17.25	3.37
34x4 1/2	20.80	21.85	4.05
35x4 1/2	21.60	22.70	4.15
36x4 1/2	21.90	22.95	4.17
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30x3 1/2 .. 7.95	8.95	35x4 .. 13.45	14.95		
32x3 1/2 .. 8.95	9.90	36x4 .. 13.95	15.50		
34x3 1/2 .. 9.60	10.45	34x4 1/2 .. 16.95	18.95		
36x3 1/2 .. 10.45	11.85	35x4 1/2 .. 17.45	19.45		
30x4 .. 11.20	12.10	36x4 1/2 .. 17.95	19.95		
31x4 .. 11.45	12.60	37x4 1/2 .. 18.45	20.45		
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31 x 4	5.00	36 x 4 1/2	8.50
32 x 4	5.50	37 x 4 1/2	9.00
33 x 4	6.50	38 x 5	9.00
34 x 4	6.00	37 x 5	9.00
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30x3 1/2 .. 8.50	9.25	37x4 .. 17.00	17.75		
31x3 1/2 .. 9.50	10.25	38x4 1/2 .. 18.00	19.50		
32x3 1/2 .. 10.50	11.00	34x4 1/2 .. 20.00	21.75		
34x3 1/2 .. 11.75	12.50	35x4 1/2 .. 21.50	22.50		
30x4 .. 12.00	12.75	36x4 1/2 .. 21.75	22.75		
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31x3 1/2	11.50	2.70	35x4 1/2	23.50	5.05
32x3 1/2	12.95	2.79	36x4 1/2	24.10	5.15
34x3 1/2	14.80	2.92	37x4 1/2	25.50	5.25
31x4	16.80	3.65	38x5	27.50	6.05
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33x4	18.40	3.87	37x5	29.50	6.25
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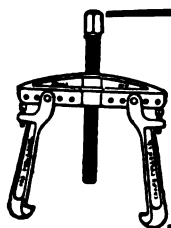
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1st

THE LUBRICANT CAN BE PUMPED FROM THE BUCKET DIRECTLY INTO THE CAR—and accurately measured as it is delivered. One complete discharge measures one pound.

There is no valve employed in this pump, as is true of other suction pumps. An open vent at the bottom of the brass barrel or inner chamber is thrown into communication with the bucket (for filling) then with the hose (for discharging) by simply turning the handle $\frac{1}{4}$ turn to the right or left.



2nd

THE LUBRICANT CAN BE DRAWN OUT OF THE DIFFERENTIAL or transmission of the car and discharged into a separate receptacle WITHOUT disturbing the contents of the Bucket.

This is accomplished by letting the vent (referred to above) remain in communication with the hose while the used grease is drawn into the barrel of the pump and again discharged through the hose into the separate receptacle.

The used grease gets no further than the inner barrel so does not contaminate the contents of the main bucket.



3rd

A LUBRICANT OF A DIFFERENT QUALITY THAN THAT CONTAINED IN THE BUCKET-PUMP CAN BE PUMPED INTO THE CAR.

This is accomplished in the same manner as described above. The nozzle of the hose is inserted into the can of foreign lubricant, the barrel of the Pump drawn full and discharged into the car without disturbing the contents of the Bucket-Pump.

Another Great Advantage

of this "valveless" construction is that the unobstructed opening in the Pump barrel enables the Weaver Bucket-Pump to handle heavier lubricant than other suction pumps employing a trap valve.

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This Pump is equipped with a flexible steel hose instead of the usual rubber hose. Grease and oils do not affect it.

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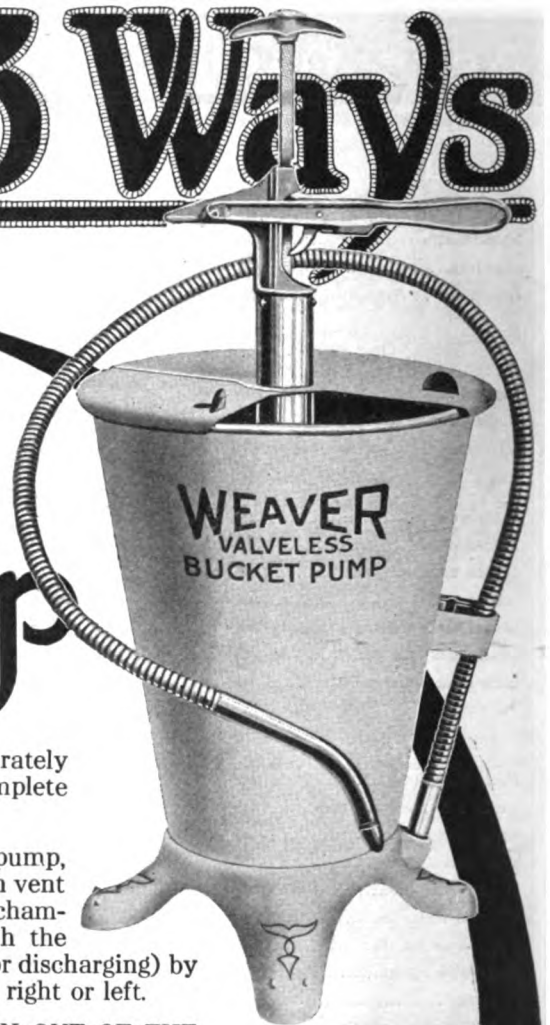
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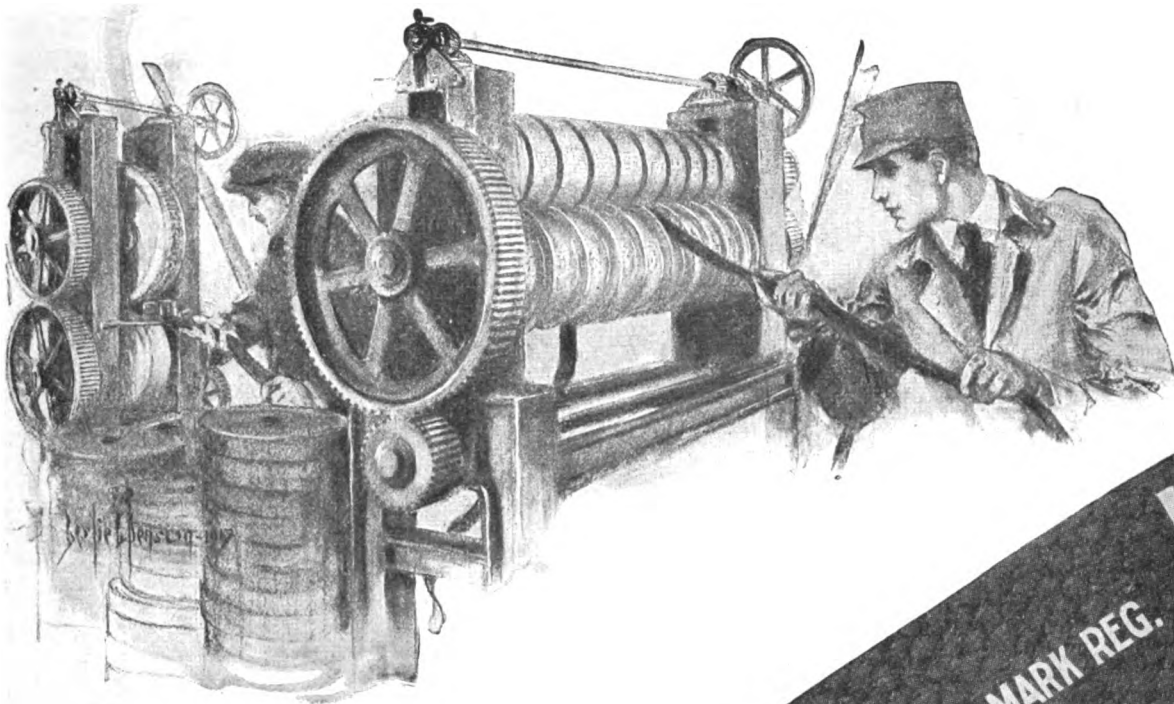
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Gives a rigid connection between the two cars and eliminates the dangers of the tow line. The spring absorbs all shocks. Cars can be backed when necessary.

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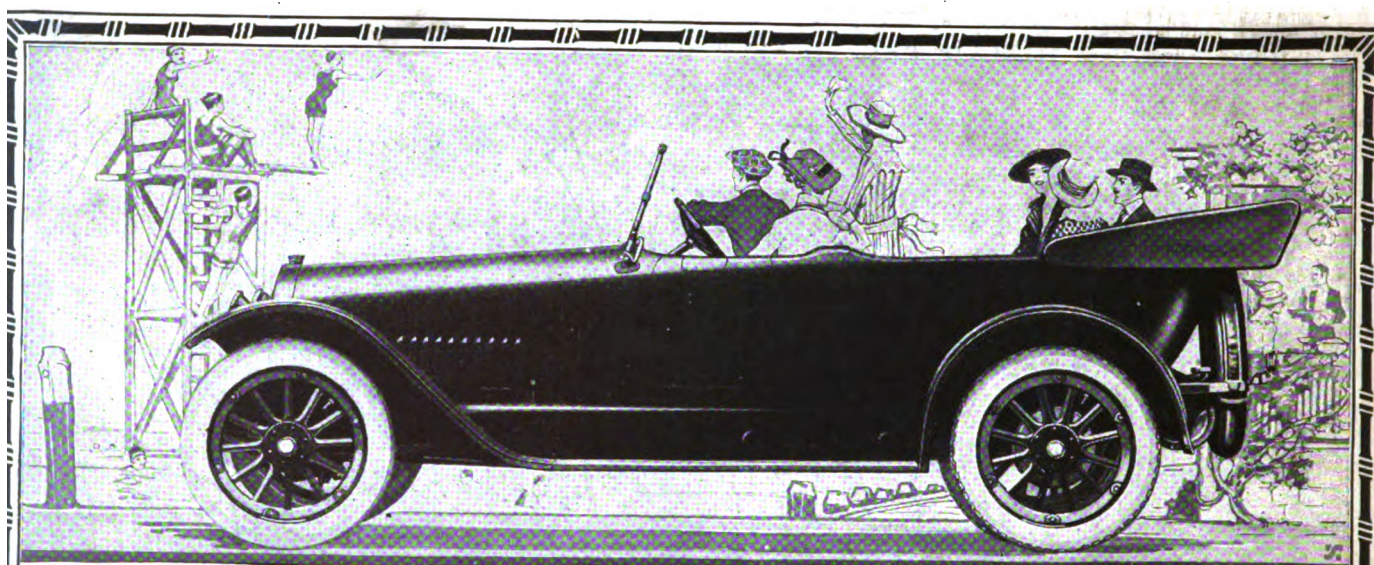
This compression gives added solidity to the fabric and perfect uniformity to its friction surface.

From the steel rollers the lining passes to the stencilling machine where the name MULTIBESTOS is branded clearly on it.

When we stamp this name on our product we do more than provide a means of identifying MULTIBESTOS.

We say to you: "Here is a brake lining we are proud of—a brake lining we are glad to have you compare with any other under any conditions of service."

STANDARD WOVEN FABRIC COMPANY
WALPOLE, MASSACHUSETTS



For Owners and Dealers Who Look Ahead

The Mitchell today is a front-rank car. The evidence is that tomorrow it will dominate its field.

It is built in a modern efficiency plant. In a plant built and equipped, from end to end, by a famous efficiency expert. And all adapted to produce this one type economically.

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Extra Values

This saving shows in extra values. The Mitchell has 31 wanted features which nearly all cars omit. It has many added beauties. This year alone we added 24 per cent to the luxury cost of these cars.

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It is built to the standard of 100 per cent over-strength, which is twice the usual margin of safety. As one result, not one rear spring has broken in two years.

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The Mitchell today is a 14-year result. It has come through 700 improvements, all aimed at leadership. In 1913 our chief engineer spent a year in Europe to garner ideas from there.

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Mitchell
Sixes
TWO SIZES

Mitchell—a roomy 7 passenger Six, with 127-inch wheelbase and a highly-developed 48-horsepower motor.

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All Prices f. o. b. Racine

MITCHELL MOTORS COMPANY, Inc., Racine, Wis., U. S. A.

AUG 29 1927

